Annual Reports

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for the years 1885-86 to 1913-14
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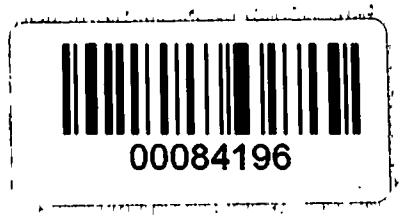

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GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following paper:—

From EDGAR THURSTON, Esq., Superintendent, Government Central Museum, to the Secretary to Government, Revenue Department, dated Madras, 2nd July 1886, No. 431:—

ABSTRACT.—Submiting report on the working of the Government Central Museum during the year 1885-86.

ENCLOSURES.

ADMINISTRATION REPORT OF THE GOVERNMENT CENTRAL MUSEUM FOR THE YEAR 1885-86.

INTRODUCTORY.—In the present report I am only able to speak from personal experience of the work which has been carried on during the latter half of the year, as I only took over charge of the museum from my predecessor, Dr. Bidie, on October the 12th.

2. The proper work of the museum was greatly retarded during the greater part of the year by the formation of a collection of artwares, jewelry, trade products, &c., of Southern India for the Madras Court of the Indian and Colonial Exhibition. I am, however, in the present instance reconciled to what would have otherwise been a great waste of time, inasmuch as Government has consented to my proposal, which was warmly supported by Colonel Hawkes, President of the Exhibition Committee, that at the close of the exhibition a specified number of the articles exhibited by the Madras Government should be sent back from England and find a permanent place in the Central Museum, which will thus acquire a very handsome addition to its contents.

3. The rapid succession of exhibitions in Paris, Sydney, Melbourne, Amsterdam, London (Fisheries), Calcutta and London (Indian and Colonial), to all of which collections were sent, has had a most disastrous effect on the working of the Central Museum; and it is most desirable that in the event of any further exhibitions taking place, the necessary work in connection with the collection of exhibits from the Madras Presidency should not be thrown upon the museum, so that the entire staff may be occupied solely with proper museum work, of which a great deal requires to be done, in order that it may be brought up to the standard required of a well-organised museum at the present day, and become a thorough index of the Presidency, where those who wish can obtain useful information.

4. It is wholly beyond the power or scope of a presidential museum to rival the great national museums in the possession of representative collections from different quarters of the globe, and I have determined to devote my entire attention to the natural history, arts, ethnology, manufactures and raw products of Southern India, accepting only such specimens from other regions as may be spent as donations from time to time, and keeping them entirely apart from the main collections. The necessity of such a course is best illustrated by reference to the geological collection, which, while abounding in a chaos of purchased and exchanged specimens of European fossils, is markedly deficient in specimens from the rich fossiliferous beds of the cretaceous system of Southern India.

5. As soon as I had ascertained for myself what line of action it would be necessary for me to carry out so as to make the museum more in accordance with my views, I applied to Government for a grant of Rs. 12,000; but, owing to the existing financial pressure, my application could not be acceded to. It, therefore, became necessary for me to make a more moderate estimate and to give up all idea of at present arranging the whole of the museum collections on a more defined system than has hitherto been adopted; and as I had spent my first official tour in making a collection of fish from Cochin and other places on the West Coast, I decided to pay special attention during the present year to the fish gallery and converting it into a properly-arranged gallery, illustrative of the marine and fresh water fauna of the Presidency.

6. VISITORS TO THE MUSEUM.—The usual statistical returns of the numbers of visitors during the year are given in Appendix B. The total number was considerably in excess of

that of preceding years, and I notice with pleasure an increase in the number of gosha ladies who visited the museum on the days set apart for them. The greatest number of visitors on any single day was 25,834 on December the 19th (Thwathasee).

7. BUILDINGS.—During the last monsoon there was some leakage from the roofs of the lecture theatre and the new gallery, which was attended to by the Department of Public Works. The pillars in the main hall were found to be constantly crumbling, and it was found necessary to dig out the chunam and substitute Portland cement, which was painted light blue. The roof is in a similar state and gives some trouble from the frequent dropping of chunam. The roof of the Curator's office still leaks considerably and will require attention. I brought the absence of a *porte-cochère* in front of the Superintendent's house before the notice of the Superintending Engineer on my arrival, and soon afterwards received plans, but I have since then heard nothing more on this subject. The repairs of the Head Taxidermist's house have not proved very satisfactory, as cracks have appeared in some of the walls in which white-ants have taken their abode. The two main gates of the museum were repaired during the year.

8. MUSEUM GROUNDS.—The Mahoganies mentioned in the last annual report were planted out, and the experiment is being tried of planting the faster-growing rain tree *Pithecolobium saman* by the side of them to act as nurses of the tender seedlings. Some seedlings of the giant *Bambusa katang*, *Bixa orellana* and *Erythroxylon coca* were also planted, but the last are not thriving. The *Nuclea cadamba* which was planted in 1881 flowered for the first time, but bore no fruit. Several of the palms which were set down a few years ago also flowered. The Andaman trees presented by Captain Torrie are all making satisfactory progress.

9. I purpose planting some fruit trees—mango, jack and cocoanut— in the grounds over several barren areas which are not pleasant to look on.

10. ARTIST.—The artist was mainly occupied with making a series of drawings of impressions of seals attached to copper grants. These he did neatly and accurately.

11. ERYTHROXYLON COCA.—Some correspondence passed between the museum and a firm of pharmaceutists on the extent of the cultivation of Coca in Southern India, and an interesting letter received from them was published in the Madras papers for the information of planters, which resulted in a number of inquiries on the subject from planters and others.

12. ESTABLISHMENT.—On retiring from office as Superintendent of the museum, Dr. Bidie recommended the revision of the pay of several members of the subordinate staff, and this revision was sanctioned in G.O., Revenue Department, No. 131, dated 15th February 1886, by His Excellency the Governor in Council as noted in the annexed statement :—

Appointment.	Present pay.	Proposed.		
		Minimum.	Maximum.	Number of yearly instalments.
	RS.	RS.	RS.	RS.
Assistant Curator	30	30	60	5
Herbarium-keeper	45	50	50	...
Head Taxidermist	50	60	60	...
Third Taxidermist	14	15	15	...
Writer	25	30	30	...

In a letter (No. 194, dated 3rd March 1886) I further urged the claims of the Assistant Librarian, the Third Taxidermist, and the man in charge of the Superintendent's room as deserving of an increase of salary, but sufficient time had not elapsed for a reply to be received to this letter before the end of the year.

13. ETHNOLOGY AND ANTIQUITIES.—Some Buddhist sculptures (174 pieces) were presented to the museum through Major H. H. Cole, being a portion of the sculptures discovered at two small Buddhist topes near Mian Khan, Eusofzai. The excavations were made for the Punjab Government. The sculptures were conveyed by rail to Madras at the rate of 6 pies a mile per truck, and some of the finer pieces will be set up in the sculpture gallery of the museum.

14. It having been desirable to make a collection as complete as possible of impressions of the seals of the South Indian dynasties, an appeal was made to the various Collectors for copies of any which are to be found in their districts. In response to this appeal a number of copies in wax and other material were received and have been figured by the artist.

15. The museum is indebted to His Excellency the Governor for the donation of an old Dutch manuscript, and to His Highness the Maharajah of Travancore for four shields.

16. HERBARIUM.—The herbarium was repeatedly visited in the early morning by His Excellency the Governor between the months of November and March. The work of the Herbarium-keeper, Mr. T. Abboy Naidu, was retarded by the collection of raw products for the Indian and Colonial Exhibition. He, however, systematically arranged, according to Hooker's Flora of British India, natural order Acanthaceæ to Amaranthaceæ and natural order Ranunculaceæ to Labiatæ (extra Indian plants) according to the Genera Plantarum. In addition 61 plants were collected in Vellore, 59 plants mounted, and 150 Indian and 220 British plants poisoned.

17. LABORATORY FOR THE GOVERNMENT MINERALOGIST.—A proposal for the erection of a laboratory for the Government Mineralogist in the museum compound was referred to me for my opinion thereon. The site which was originally selected I objected to for many reasons, but consented to the use of another site which was suggested in a different part of the compound. Subsequently, I was asked to try and find a building suitable for the requirements of the Government Mineralogist in the vicinity of the museum, but was not successful in finding one.

18. LECTURE THEATRE.—The following lectures were given:—

Captain Hays	...	On horse management.
Edgar Thurston, Esq.	...	,, sponges.
Do. do.	...	,, corals.
Captain R. H. C. Tufnell	...	,, musketry.
C. Michie Smith, Esq.	...	,, cyclones.

The lecture on musketry was given specially for members of the Madras Volunteer Guards. The other lectures were all well attended, and I was pleased to see that a large portion of the audience at the scientific ones was composed of Native students.

The theatre was also used for the monthly meetings of the South Indian Branch of the British Medical Association.

19. LIBRARY.—The total number of visitors who came to consult books was 5,563 against 5,172 in the preceding year, being a monthly average of 463. That, if their duties allowed it, many more would use the books is shown by the greater number of visitors during the Christmas holidays than at any other time.

The following list shows the nature and number of books consulted during the year:—

Class of Books.	*No. consulted.*
Anatomy and Physiology	43
Antiquities and Ethnology	32
Arts and Industries	34
Astronomy	11
Books for Juveniles	17
Botany and Economic Botany	78
Chemistry	23
Classics	3
Encyclopædias, Dictionaries, &c.	130
English Language and Literature	110
Fine Arts	9
General Science	22
Geography, Travels and Sport	54
Geology, Mineralogy and Palæontology	23
History and Biography	81
Hygiene and Dietetics	13
Law, Politics and Political Economy	49
Mathematics	10
Medicine and Surgery	17
Mental and Moral Science	36
Microscopic Science	2
Official Manuals and Reports	33
Oriental Languages and Literature	144
Physical Science	32
Religion and Mythology	15
Scientific Journals and Periodicals	11
Telegraphy and Stenography	2
Veterinary	1
Zoology	60
Miscellaneous	17
Newspapers, &c.	4,451
Total	5,563

20. The total number of books added to the library during the year was 860, and they were acquired as follows :—

	NO.
Presented by Government	144
Do. by private individuals	73
Purchased	156
British Museum publications presented	13
Patent Office papers	20
Trübner's Oriental series	5
Fresh library books purchased	16
Periodicals	433

21. The number of books bound during the year was 99.

22. MADRAS HARBOUR AND BEACH.—Through the kindness of F. N. Thorowgood, Esq., Superintendent of Harbour Works, I have received many interesting specimens which were picked up during the diving operations. These include a red incrusting sponge, two other sponges, a zoanthus, several species of coral (gargonidæ) and a holothurian (sea cucumber). I have also obtained from the surface water in the harbour specimens of Salpa, Velella and Physalia (Portuguese man-of-war), and from the beach a shell of Ostræa perforated by a boring sponge (cliona), a shell of Pinna Japanica with hydroids attached to it, and various other molluscan shells. Pieces of pumice stone have been repeatedly picked up on the shore, and I incline to the theory that they have drifted hither from Krakatao. Similar pieces have been sent to me during the year, picked upon the shore of the West Coast at Calicut and Tellicherry.

23. NUMISMATICS.—Though a catalogue of the gold coins in the museum collection had been issued, the arrangement of a great mass of silver and copper coins remained to be taken in hand. My first endeavour in this direction was to collect them all together and distribute them roughly into dynasties. This work was completed with the assistance of Captain R. H. C. Tufnell, who from his experience in Indian numismatics was able to indentify many issues to which I should have myself been unable to assign a place. The same gentleman then gave me great help in the arrangement of the different dynasties, and the Roman and Indo-Greek series are already completed. Among the former several coins of very considerable interest and value have come to light, notably an issue of Plautilla, wife of Caracalla, with Latin inscription PLAUTILLA AUGUSTA, and a fine green, copper coin of Constantinus Magnus struck in London. The collection of Indo-Greek and Bactrian coins is not very rich, but I am in correspondence with a view to making it more complete. As the coins of each dynasty are arranged, I am compiling a manuscript catalogue with a view to future publication, in which all issues—gold, silver, copper, &c.—will find a place; but I propose to keep the gold coins, as at present, in the museum strong-box and display the coins in silver and the baser metals in the body of the museum, so that they may be seen by visitors without any special application.

24. As usual, a large number of coins, amounting in all to 1,411, has been presented to the museum during the year either by various societies or by private individuals. Among these I may specially mention a gold coin of the Gupta era, presented through the Honorary Secretary of the Madras Literary Society, and a fine Rama Tanka presented by T. M. Scott, Esq., of Madura.

25. NATURAL HISTORY—(1). *Arachnida.*—A large living spider (Myagale fasciata) was forwarded to the museum from Hoonsoor, where it was supposed to be causing death among the flocks. An experiment was made on a living sheep to see if the spider would produce any ill-effect on it, but the result proved negative, and the untimely death of the spider stopped any further experiments. I wrote requesting that some more living specimens should be sent to me, but at the end of the year none had arived.

Mention was made in last year's annual report of a scorpion sent by H. R. P. Carter, Esq., living by preference in water. During the latter end of the year I kept specimens of two other species of scropion from Madras in jars containing some water, and though the animals were often seen above water on some stones which I placed in the jar, it frequently happened that they remained for long periods submerged beneath the surface of the water; so that our common scorpions may be considered amphibious in their habits. The subject is one which is worthy of study on the animals in their natural conditions.

(2). *Crustacea.*—My thanks are due to Dr. Henderson of the Christian College for naming many of the species contained in the museum collection — a task which he was well qualified to carry out, as he has devoted special attention to this order in connection with the "Challenger" Expedition collection.

(3). *Fish.*—In addition to a large number of fish obtained during my tour on the West Coast (q.v.) 8 specimens were sent to the museum, including a Gourami presented by R. Hollingsworth, Esq. From time to time various species of salted fishes were sent by the Salt Department for identificaton.

(4). *Insects.*—A large number of insects were sent to the museum, among the most interesting of which were one which was proving destructive to the sugar-canes in North Arcot, and another

which was inflicting its ravages on the cinchona leaves in the Wynaad, and of which specimens were sent, together with some of the affected leaves, by Messrs. Arbuthnot and Co., to whom I made a report suggesting certain precautions to be adopted and certain remedial agents to be tried, while pointing out that the expense of applying chemical reagents where the infested area is a large one is often greater than the loss of money caused by the ravages of the insect pests, and further that in the interest of the planter a prolonged and careful study in a practical manner, not only of the life history and habits of the parasites, but also of the cheapest and at the same time most effective means of exterminating them, is much needed.

(5). *Mammals and Birds.*—The light in the gallery in which both mammals and birds are exhibited is exceedingly bad, and the cases in which they are arranged do not show them off to advantage. Many of the specimens, too, are very old and require replacing by new ones. A great desideratum is a good collection of skeletons of the animals of Southern India, and at the end of the year some of my assistants in the taxidermic department were engaged in the preparation of skeletons of some of the common types. The collection of birds should possess not only the male and female birds, but also the nest with the eggs of each species set up artificially, in such a way as to imitate the natural surroundings; but I am afraid that this ideal will not be attained to for a long time. During the year 27 mammals were received, of which 8 were purchased and 19 presented. Among them was a lion from the People's Park, the gift of the President of the Municipal Commission, which has been stuffed.

The total number of birds acquired was 626, of which 513 were obtained by purchase. The greater number were collected by Mr. Davison, who was engaged for a period of six, which was extended to eight, months to make a collection of South Indian birds. At the end of the year the last consignment had not arrived, but those which had been received were arranged as cabinet specimens for purpose of study.

(6). *Mollusca.*—A great amount of space is wasted in the gallery at present devoted mainly to a collection of shells mixed up together in cases without reference to locality, and containing a number of specimens labelled vaguely "Eastern Seas." In accordance with my views as to making the museum essentially representative of South India, I have picked out those specimens which I know definitely to have been found in the Madras Presidency, and they, together with other specimens collected along the coast by myself, form the nucleus of a South Indian collection. The general collection will be put away in drawers, where it will be available to those who wish to study it specially, and a large amount of space be thus economised.

The total number of shells, exclusive of those collected by myself, acquired during the year was 1,017, nearly all of which were given by the Assistant Curator, Mr. K. Damodarum Naidu.

Some minute pelagic shells were sent from Vizagapatam, where they were mistaken by the natives for pearls which had fallen from heaven.

I am much indebted to H. S. Thomas, Esq., for giving me specimens of the shells of *Avicula vexillum* and *Avicula fucata* in various stages of growth, in illustration of his report on pearl fisheries.

(7). *Reptiles.*—The additions during the year amounted to 24, of which Deputy Surgeon-General Shortt sent the greater number. A number of specimens were sent to me, for identification, from Ootacamund by M. A. Lawson, Esq.

26. TAXIDERMIST'S DEPARTMENT.—The following is an abstract of the specimens prepared or collected during the year :—

	NO.
Mammals	22
Skeletons of mammals	3
Fishes	114
Reptiles	72
Crustacea	50
Insects	650

* This includes (1) a number of birds, fishes, reptiles and insects collected by the Second Taxidermist at Vizagapatam, to which place I sent him for two months at the request of H. G. Turner, Esq., Collector of that district; (2) a series of 159 game birds of South India which was originally collected for the Indian and Colonial Exhibition, but has been retained for the Central Museum; 75 of the Nilgiri birds collected by Mr. Davison, which were stuffed and mounted.

This department is now in good working order, and I notice with pleasure not only the interest, but also the improvement, which the assistants display in their work.

As the result of a suggestion from several gentlemen who complained that, when out on shooting or fishing expeditions, they often met with specimens which would be of interest to the museum, but were not able to keep them from want of the necessary time for, and special knowledge of, the methods of preserving and stuffing, I am training a young man, whom I shall be happy to place at the disposal of sportsmen, on condition that they give me a share of the spoil for the museum.

27. TOURS.—His Excellency the Governor in Council acceded to my proposal that I should be allowed to make periodical tours to different parts of the Presidency so as to collect for myself any objects of interest which I may find for the museum.

The first of these tours was made in March, when I went, accompanied by my Head and Third Taxidermists, to Cochin and visited also Quilon and Trivandrum. The main results of this tour have been embodied in a special report to Government, and I therefore confine myself in the present report to giving a list of the fish (the collection of which was my main object) which I obtained from Trichoor, Cochin and Quilon, and which have either been stuffed or preserved in alcohol.

TABLE I.

Species obtained at Trichoor.

1.	Macrones Malabaricus	Edible
2.	Do. chryseus	do.
3.	Gobius giurus	do.
4.	Etroplus suratensis	do.
5.	Mastacembalus armatus	do.
6.	Do. pancalus	...
7.	Ophiocephalus punctatus	Edible
8.	Plotosus canius	...

TABLE II.

Species obtained at Cochin.

Number.	Latin Name.	Tamil Name.	Malayalam Name.	Remarks.
1	Trygon narnak	Sonakah tiriki ..	Padavanthrandy ..	Young ones captured in back-water. Eaten by Natives.
2	Do. sp. (?)	....	Pullythrandy ..	....
3	Ætobatis narinari	Currooway tiriki ..	Kakathrandy	Eaten by Natives.
4	Rhinobatus halavi	Padungan	Paruthalay	....
5	Rhinoptera adspersa	Mutta tiriki	Eroomookanthrandy ..	Large ones cut in pieces and brought to market for sale.
6	Lates calcarifer	Koduwa	Narymeen (jackal fish)	Good eating; known as Nair fish in Malabar.
7	Serranus Malabaricus	Punni calawah ..	Curoopu	Large fish cut in pieces and salted.
8	Do. sp. (?)	Calawah	Do.	....
9	Therapon jarbua	Palin keechan ..	Cullankovay	....
10	Diagramma griseum	....	Cutraw	....
11	Do. crassispinum ..	....	Do.	....
12	Lobates surinamensis	Musalli	Curruputty	Good eating. Good isinglass made from air bladder.
13	Gerres filamentosus	Oodan	Prawellee	Eaten by Natives and salted.
14	Do. oyena	....	Do.	....
15	Scatophagus argas	Sipili	Nutchar char ..	Eaten by lowest classes.
16	Ephippus orbis	Nulla torriti	Parinthee	Eaten, but not esteemed (Day).
17	Upeneus Indicus	Mussara	Coozy meen	....
18	Do. sp. (?)	Do.	Do.	....
19	Chrysophrys hasta	Currupumuttivayan ..	Aree	Good eating.
20	Lutianus rivulatus	Cuttu pirium	Cheppary	Largest specimen measured 34 inches, caught in both fresh and salt water. Good eating.
21	Do. roseus	Moosoodee	Chembullee	
22	Do. quinquelineatus ..	....	Cheppary	....
23	Do. Johnii	....	....	....
24	Sciæna maculata	Vari cathalay ..	Cuttalaw	Air bladders collected extensively for manufacture of isinglass. The price of the bladder sometimes exceeds that of the fish itself. Not much esteemed as food.
25	Do. vogleri	....	Korkaw	
26	Do. carutta	Carung kuthalay ..	Carykutlay	
27	Do. osseus	....	Cuttalaw	
28	Sciænoides sp. (?)	Vanniapunnah ..	Chakalaw	
29	Caranx armatus	Tanga paray ..	Vuttaw	....
30	Do. sansum	....	Periavuttay	Eaten by lowest classes.
31	Do. sp. ?	Paray	....	....
32	Do. gymnostetheides ..	....	....	....
33	Chorinemus lysan	Toal paray	....	Good eating.
34	Psettus argenteus	....	Kael Parinthee ..	....
35	Equula edentula	....	Cooroochee	Used when salted in making pepper-water, which is supposed to possess medicinal virtues.
36	Do. ruconius	Carra pody	Do.	
37	Scomber microlepidotus ..	Kanang kelleetee ..	....	Eaten by Natives. Supply varies from year to year.
38	Sillago sihama	Culingan	Veekutha	Good eating. Known to Europeans as "whiting."
39	Platycephalus insidiator ..	Ooloopathy	Oorathallee	Eaten by Natives. Known in Malabar as "crocodile fish."
40	Gobius biocellatus	....	....	....
41	Mugil cunnesius	Madavay	Sultham	Mullet. Good eating; extensively salted and sun-dried. In Canara an objection was raised to eating them, as their heads are like those of snakes.
42	Do. poicilus	Do.	Nary cunnumboo ..	
43	Do. cunnumboo	....	Cunnumboo	

Table II—*continued.*

Species obtained at Cochin—continued.

Number.	Latin Name.	Tamil Name.	Malayalam Name.	Remarks.
44	Ophiocephalus punctatus ..	Koravay	....	Eaten by Natives.
45	Do. striatus ..	Veral	Verarl	Good eating, but muddy if from stagnant water.
46	Etroplus suratensis	Chettha kenday ..	Curry meen	Very good eating; sometimes more than one foot in length in backwater.
47	Do. maculatus	Pitul kass	....	Eaten by Natives.
48	Cynoglossus sp. (?)	Nakkoo meen ..	....	
49	Chaca lophioides		Kadal thavalay ..	
50	Arius subrostratus	Kelleettee	Soondun cooree ..	Good eating only when young. Salted and eaten by poorest classes.
51	Do. Malabaricus	Do.	Thalayatay	
52	Do. sp. (?)	Do.	Poovatay	
53	Saurida tumbil	Kadalooloovay ..	Arana meen	
54	Haplochilus rubrostigina ..	....	Poonchan	
55	Do. Lineatus	....	Do.	
56	Hemirhamphus Xanthopterus.	....	Kola	
57	Belone annulata	Pahmun kola	Do.	
58	Chatoessus chacunda	....	Thodee	Eaten by Natives.
59	Do. nasus	Muddu kandi	Do.	Good eating.
60	Engraulis Malabaricus	Poor-realn	Nadu manangu ..	Eaten by Natives.
61	Do. Indicus	Netteelee	Ooroo manangu ..	
62	Clupea toli	Oolum	Palavaw	
63	Do. sp. (?)	....	....	
64	Elops saurus	Allathi	Vulleekoomy	
65	Megalops cyprinoides	Moran candai ..	Cunny	
66	Chanos salmoneous	Tulu candal	Kootheekoomy ..	Called "milk fish" or "white mullet" by Europeans.
67	Dussumieria acuta	....	Nulla chalay	Very good eating; known as sardine.
68	Ophicthys microcephalus ..	....	....	
69	Triacanthus brevirostris ..	Moolean	....	Eaten by Natives (not eaten in Madras).
70	Anacanthus barbatus	Watamookela ..	....	

LIBRARY OF THE ... ZOOLOGICAL SURVEY OF INDIA

Table III.

Species obtained at Quilon.

Number.	Latin Name.	Tamil Name.	Malayalam Name.	Remarks.
1	Carcharias sp. (?)	Soorah	Soorah	Used as food by Natives.
2	Narcine timbi	....	....	
3	Gerres oyena	....	Praweellee	
4	Drepane punctata	Torriti	Parunthee	Used as food.
5	Holocentrum rubrum ..	Kul-hah-catchee ..	Poollan	
6	Acanthurus mata	Cozy meen	....	
7	Caranx leptolepis	Paray	Buttaparay	
8	Psettus argenteus	....	....	
9	Trachynotus ovatus	Thookoonassey ..	....	Eaten when salted.
10	Equula insidiatrix	....	Combancooroochee ..	
11	Mene maculata	....	....	
12	Cybium guttatum	Vanjeerum	Arrakeeah	Good eating. Best tamarind-fish made from salted fish.
13	Platycephalus insidiator ..	Ooloopathy	Oorathallee	Eaten by Natives.
14	Salarius frenatus	Parvut meen	Poolan	
15	Do. sp. (?)	Do.	Do.	
16	Platyglossus Dussumieri ..	....	Culladay	
17	Synaptura orientalis	....	Suptharee	
18	Cynoglossus sp. (?)	Nakku meen	....	
19	Arius thalassinus	Kadal kelleetee ..	....	
20	Do. subrostratus	Kelleetee	Soondum coorree ..	Eaten by Natives.
21	Saurida tumbil	Kadal ooloovay ..	Aranay meen ..	
22	Belone annulata	Phamun kola ..	Kola	
23	Clupea longiceps	....	Kokala chalaw ..	Used for making "fish oil."
24	Murænesox telabon	Kulivi pamboo ..	....	
25	Triacanthus brevirostris ..	Moolean	....	Eaten by Natives.
26	Tetrodon inermis	Plachee	....	
27	Do. sp. (?)	Do.	....	
28	Do. sp. (?)	Do.	....	

Government Central Museum,
Egmore,
2nd July 1886.

(Signed) EDGAR THURSTON,
Superintendent, Government Central Museum.

APPENDICES.

A.

GENERAL LIST OF THE CONTRIBUTIONS, &C., RECEIVED FOR THE GOVERNMENT CENTRAL MUSEUM FROM 1ST APRIL 1885 TO 31ST MARCH 1886.

		NO.
Abboy, T., Naidu, M.R.Ry.—		
Country smoking pipes	3	3
Armstrong, Dr. H., Kilpauk—		
Bulrush caterpillar from New Zealand	1	3
Plant from New Zealand	1	
Geological specimens from the volcanic districts of New Zealand,	Collection	
Baudry, G. E., Esq., Tellicherry—		
Pumice stones found floating in the sea	Collection.	Collection.
Bidie, Dy. Surgn.-Genl. G., M.B., C.I.E., Sanitary Commr. for Madras—		
Snake	1	9
Fruits of *Vateria Malabarica* from Travancore	4	
Moulds, one of each of Travancore chakram fanam and causy	3	
Palm-leaf basket for carrying onions on boardship	1	
Calder, D., Esq., St. Thomè—		
Parrakeet	1	1
Cameron, J., Esq., Superintendent, Bangalore Museum—		
Lac insects on *Shorea taluna*	Collection	22
Prepared varieties of areca-nut	21	
Carter, H. R. P., Esq., Chetput—		
Clavicles of a tiger	4	77
Egg cases of zygæna	63	
Aquatic scorpions	2	
Caterpillars of a moth	2	
Cocoons of *Cricula trifenestrata*	3	
Woods from an old bridge bored by Isopods (*Sphæroma vastator*).	2	
Snake	1	
Chingleput, Collector of—		
Impressions of seals	2	2
Conran, Mr. J. G., Perambúr—		
Copper coins	6	6
Cumine, Master J. C.—		
Bird's nest	1	1
Dale, Mr. J., Poonamallee—		
Reptile (*Draco Dussumieri*)	1	3
Pumice stones picked up on the sea-beach at Calicut	2	
Daly, William Mahon, Esq., Yercaud, Shevaroys—		
Birds' nests	8	48
Eggs received in exchange	37	
Insect	1	
Fruits	2	
Damodaram, R., Naidu, M.R.Ry.—		
Bat	1	1,005
Beetles	2	
Butterfly	1	
Wasp's nest	1	
Shells	1,000	
Davasagayam, D., Pillai, M.R.Ry., Salem—		
Samples of coffee	4	4
Davison, W., Esq., Ootacamund—		
Birds	96	96
Deane, G. W., Esq., The Luz—		
Chrysalis of a butterfly	1	1
DeCaster, Mr. E.—		
Tail of a skate	1	2
Head of a stone image	1	
Dique, Mr. W. F.—		
Leaf insect	1	1
Ditmas, F. W., Esq., Assistant Commissioner of Salt Revenue—		
Fish (*Julis lunaris*)	1	1
Doyle, Pat., Esq., C.E., Lucknow—		
Pieces of pinewood pulp for paper-making	2	11
Grass (*Pollema eriopoda*) bundle	1	
Specimens of "ball coal" from the Rani Gunj Coal-field, Damuda Valley, Bengal	8	

		NO.
Duncan, J. H., Esq., Nungumbaukum—		
Common tree-cat (Paradoxurus Musanga)	1	
White Guinea-fowl	1	3
Cobra	1	
Dunhill, Mrs. E. S., Pursewalkum—		
Fish		1
Duraisawmy, A. S., Pillay, M.R.Ry—		
Leech	1	
Cluster of eggs of a snail	1	
Rock specimen	1	4
Goglet from Mysore	1	
Etherajulu Naicker, P., M.R.Ry—		
Rat		1
Farmer, H. R., Esq., Acting Collector, Trichinopoly—		
Chrysalis		2
Fowler, Mr. G —		
Bird's nest		1
Garstin, J. H., Esq., C.S.—		
Indian fire-flies		Collection.
Gleeson, J. M., Esq., Superintendent, Agri-Horticultural Society's Gardens—		
Spiders		Collection.
Godávari, Collector of—		
Impressions of seals		3
Gompertz, H., Esq., Yercaud—		
Stone implements from fort, human face, and peacock hills in Bellary		52
Gordon, D. C., Esq.—		
Caterpillars		4
Gordon, Mrs. D. C.—		
Leaf insects		2
Governor in Council, His Excellency the—		
Dutch manuscript, a memorial of the Dutch in the East		1
Govinda, P., Menon, M.R.Ry.—		
Insect (Mantis flabellicornis)		1
Guthrie, Colonel T. K.—		
Mantis		1
Handley, J. W., Esq.—		
Insect (Nepa grandis)		1
Havelock, Mrs. Ann L.—		
Skull of a tiger		1
Hawkes, Colonel H. P.—		
Specimens of raw and ginned Nankin cotton and the coarse cotton-cloths woven from the latter from Aracan	4	
A wicker basket made by the hill tribes of British Burma	1	13
Burmese copper coins	8	
Hollingsworth, R., Esq.—		
Gourami fish		1
Holmes, W. T. Hamilton, Esq.—		
Egg of horned owl	1	2
Shell of Balanus	1	
Honorary Secretary, Agri-Horticultural Society, Madras—		
Spiders' nests	2	
Old casuarina pole with borings	1	4
Specimen of curious growth of the roots of Casuarina muricata	1	
Honorary Secretary, Bombay Branch of the Royal Asiatic Society—		
Silver coins	5	7
Copper coins	2	
Honorary Secretary, Madras Literary Society—		
Gold coin		1
Honorary Secretary, (Philological) Asiatic Society of Bengal, Calcutta—		
Gold coins	2	
Silver do.	17	48
Copper do.	29	
Iya Pillay, Eleazer John, Mr.—		
Silver coins	3	11
Copper do.	8	
Johnston Major, Chelmsford Estate, Mettupálaiyam—		
Rheea stalk (China grass) Boehmeria nivea, grown on Chelmsford Estate.		1

	NO.
Kernan, Honorable J., Adyar—	
Snake (Eryx Johnii) with mutilated tail	1
Kistna District, Collector of—	
Impressions of seals	2
Kurnool District, Collector of—	
Impression of seal	1
Leman, J. D., Esq., Collector of Coimbatore, and Pickance, Colonel W. J., Superintendent of Jail, Coimbatore—	
Ancient pottery with peculiar markings on it	17
Leonard, Mr. J. H., Mount Road—	
Australian magpie	1
London Exhibition Committee, Madras—	
Brass jewelry 188	218
Toys 30	
McNally, Dr. C. J., Egmore—	
Butterfly (Euplæa midamus) with imago and pupa case	3
Madhava Charry, M.R.Ry—	
Double brinjal	1
Madura, Collector of—	
Impressions of seals	2
Magrath, Colonel B. H. W.—	
Spider (Mygale sp.)	1
Maitland, Dr. J., Egmore—	
Larvæ of a fly produced in a bottle of gum	Collection.
Malabar, Collector of—	
Impressions of seals	5
Mitchell, A., Esq., Salt Department, Ennore—	
Snout of a saw-fish (Pristis cuspidatus)	1
Mitchell, E. A., Esq., Saint Thomé—	
Cray-fish (Palinurus)	1
Mitchell, J. H., Esq., Coimbatore—	
Pangolin	1
Mitchell, Mr. W. C. H., Kilpauk—	
Birds' eggs	10
Moonoosawmy, K., Naidu, M.R.Ry—	
Improved Jew's Harp	1
Morgan, Rhodes, Esq.—	
Insect (Nepa grandis)	1
Morris, A. W., Esq.—	
Birds' eggs	3
Moothoosawmy, C., Pillai, M.R.Ry.—	
Parrakeet	1
Nasiruddin, Mahomed, Khan Bahadoor—	
Copper coins	2
Nellore, Collector of—	
Impression of a seal 1	2
Copy of impression of a seal 1	
Nicholas, Mr. E. A. S.—	
Snake (Python Molurus)	1
North Arcot, Collector of—	
Impressions of seals	8
Peddie, Miss, Royapooram—	
Death's-head hawk-moth	1
Peebles, Mrs. J. H.—	
Insect (Trombidium)	1
President, Municipal Commission, Madras—	
Monkeys 2	7
Tree-cats 2	
Lion 1	
Cockatoo 1	
Black swan 1	
Prudhomme, H., Esq., Egmore—	
Specimen of wine (bottle) 1	2
Do. of coca leaves ... ... Collection	
Punjab, Government of, through Major H. H. Cole—	
Buddhist sculptures from two small topes, at places called Nuttu and Mian Khan, 24 miles north of Koti Mardan	174 pieces.

		NO.
Raghavendra, T., Row, M.R.Ry., Assistant Commissioner, Shimoga—		
Gold coin		1
Rainnier, H., Esq.—		
Copper coins		93
Rajaram, T. Misser, Esq.—		
Copper coins		6
Ratton, Dr. J. L., Egmore—		
Moth (Actias luna)	1	2
Beetle (Cosyphus)	1	
Revenue Settlement and Agriculture, Acting Director of—		
Specimens of larva of a beetle		3
Robertson, W. R., Esq., Saidápet—		
Fish (Lutianus roseus)	2	3
Fresh-water turtle of the genus Emys	1	
Royal Botanic Gardens, Seebpore, Calcutta, Superintendent of—		
Seeds (Pithecolobium Laman) (packet)	1	17
Seeds, Palm (packet)	16	
Salem, Collector of—		
Impression in wax of the image of the goddess Kamatchi Amman of Conjeeveram		1
Salunkei, Kistnajee Row, M.R.Ry., Tanjore—		
Fencing sticks		2
Scott, T. M., Esq., Madura—		
Rama Tanka gold coin		1
Shortt, J., Retired Deputy Surgeon-General—		
Mammals	3	50
Otter skin	1	
Bird	1	
Birds' skins	2	
Birds in spirit	5	
Chicken	1	
Reptiles	15	
Fish	1	
Crustacea	10	
Insects	8	
Worms in a phial	Lot	
Calcium carbonate from blackwood	„	
Do. from teak trees	„	
South Canara, Collector of—		
Impression in wax of a "Vamana Madri" seal		1
Stafford, H., Esq., District Forest Officer, Godávari—		
Agates	3	5
Lac found on trees in Rékapalle, Upper Godávari Taluk ...	1	
Tailor bird's nest	1	
Steel, H. W., Esq., Deputy Commissioner of Rohtak—		
Silver coin		1
Stephenson, Miss C. F., Kilpauk—		
Moths		2
Tanjore, Collector of—		
Beetles of the genus Cerambyx	6	18
Impressions on wax from old seals used by the Dutch and Danish Governments	6	
Impressions on wax from Tanjore palace...	5	
Impression of a seal	1	
Thomas, H. S., Esq., First Member, Board of Revenue—		
Shells (avicula vexillum)	Collection	4
Shells (Unio Marginalis)	3	
Thoroughgood, F. N., Esq.—		
Specimen of coral		1
Tinnevelly, Collector of—		
Impressions of seals		4
Travancore, His Highness the Maharajah of—		
Shields		4
Tufnell, Captain R. H. C.—		
Silver punch mark Buddhist coin (in exchange)		1
Turner, H. G., Esq., Acting Collector of Vizagapatam—		
Impressions of seals		2

	NO.
VanIngens, Mrs. Alice, Egmore—	
Spider's nest and young	2
Vizagapatam, Senior Assistant Collector of—	
Pelagic shells	12
Volluru, the Zemindar of—	
Copper coins	1,222
West, H. C., Esq., Nungambaukum—	
Bird (Nycticorax griseus)	1
Egg of Ixos luteolus	1 } 2
White, Mr. Willie, A. F.—	
Egg of white scavenger vulture	1
Whiteside, W. S., Esq.—	
Snake (Tropidonotus quincunciatus)	1
Winde, Monsieur B., Germany—	
Beetles	115
Wilson Fellows, V. S., Tuticorin—	
Plant (Capparis aphylla)	1

B.

VISITORS to the Government Central Museum from 1st April 1885 to 31st March 1886.

1885-86.	SIGNATURES MADE IN											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagaree.	Guzerattee.	Canarese.	Chinese.	Cingalese.	Malayalam.	Bengalee.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	1,961	345	147	1,199	13	9	18	20	..	..	48	3
May	1,996	437	203	1,400	17	5	27	14	..	..	16	..
June	2,420	697	269	1,882	14	5	3	29	..	..	25	..
July	2,260	591	460	2,185	8	7	24	16	..	..	27	..
August	2,020	419	213	1,987	11	2	27	23	..	..	21	..
September	2,433	498	253	1,943	14	12	31	14	..	..	40	..
October	1,566	403	139	1,474	17	7	24	18	..	..	26	2
November	1,714	347	147	1,534	..	7	17	12	..	..	35	..
December	4,519	1,103	341	4,023	12	25	72	66	..	..	51	..
January	2,636	578	259	1,765	4	6	26	34	2	..	49	..
February	1,947	338	160	1,222	9	7	17	23	..	2	37	..
March	2,046	439	182	1,205	11	18	16	21	1	..	62	..
Total ..	27,458	6,195	2,773	21,819	130	110	302	290	3	2	437	5

1885-86.	Total of signatures.	Unable to sign, but tally kept.	Total of visitors.	NUMBER OF		Total of visitors.
				Men and boys.	Women and girls.	
	14	15	16	17	18	19
April	3,763	12,278	16,041	9,755	6,286	16,041
May	4,115	15,635	19,750	11,412	8,338	19,750
June	5,344	23,057	28,401	16,403	11,998	28,401
July	5,578	18,976	24,554	14,650	9,904	24,554
August	4,723	16,498	21,221	12,724	8,497	21,221
September	5,238	23,730	28,968	16,154	12,814	28,968
October	3,616	13,635	17,251	10,266	6,985	17,251
November	3,813	11,487	15,300	9,728	5,572	15,300
December	10,212	50,052	60,264	32,923	27,341	60,264
January	5,359	44,337	49,696	25,103	24,593	49,696
February	3,762	10,955	14,717	9,058	5,659	14,717
March	4,001	14,298	15,299	9,587	5,712	15,299
Total ..	59,524	251,938	311,462	177,763	133,699	311,462

.C.

Statement showing the number of Visitors to the Government Central Museum for the past five years.

1881-82	211,246
1882-83	271,881
1883-84	242,514
1884-85	272,968
1885-86	311,462

D-1.

List of Books added to the Public Library.

1.—*By Purchase (Standard Works).*

	Volumes.
Anaryan Early Ideas, a group of Hindoo stories	1
Antiquities of Asia, by Sir W. Jones	2
Bagehot, W.—Physics and Politics	1
Balfour, Surgeon-General E. G.—The Cyclopædia of India	3
Bernstein, J.—The Five Senses of Man	1
Bird, F. J.—The American Practical Dyer's Companion	1
Blades, William.—The Enemies of Books	1
Bower, F. O. and S. H.—Vines Course of Practical Instruction in Botany.	1
Buckley, Arabella B.A.—Short History of Natural Science	1
Caird, Sir James India.—The Land and the People	1
Capper, J.—Observations of the Winds and Monsoons	1
Chambers' Encyclopædia of Universal Knowledge	10
Clarke, C. B.—Commelynaceæ et Cyrtandraceæ Bengalensis, folio	1
Clayton, Sir R.—Life of Alexander the Great	1
Cooke, M. C.—Hand-book of British Fungi	2
Cox, Sir G. W.—The Mythology of the Aryan Nations	2
Curtis's Botanical Magazine, Vols. 13 to 37	25
Deane, Rev. J. B.—Worship of the Serpent	1
De Leon, E.—The Khedives of Egypt	1
De Candolle, A.—Origin of Cultivated Plants	1
Deschanel, A.—Elementary Treatise on Natural Philosophy	1
Dictionary of the Religious Ceremonies of the Eastern Nations, &c.	1
Echoes from Old Calcutta, by H. E. Busteed	1
Forbes, James.—Oriental Memoirs	4
Gladwin, F.—Memoirs of Khojeh Abdul Kurreem	1
Gladwin, F.—Dissertation of the Rhetoric Prosody and Rhyme of the Persians	1
Graham, M.—Journal of a Residence in India	1
Haite's Plant Studies, Parts 3 to 7	5
Hamilton, A.—Account of the East Indies	1
Historical View of Plans for the Government of British India	1
Hooker, J. D.—Rhododendrons of Sikkim Himalaya, folio	1
Hooker, J. D.—Illustrations of Himalayan Plants, folio	1
Hunter, R.—The Encyclopædia Dictionary	5
Husbandry and Commerce of Bengal—Remarks on the present state of the—	1
Huxley, T. H.—Elementary Lessons in Physiology	1
Kirby, W. F.—Elementary Text Book of Entomology	1
Land of Temples	1
Malley, A. C.—Micro-Photography	1
Max Müller, F.—Sacred Books of the East, Vols. 20, 22 and 24	3
Meyen, F. J. F.—Outlines of the Geography of Plants	1
Mitchell, Mrs. M.—In India, Sketches of Indian Life and Travel	1
Money, Colonel E.—The Cultivation and Manufacture of Tea	1
Orme, R.—Fragments of the Mogul Empire	1
Penant, T.—View of Hindoostan	1
Ribot, T.—Diseases of Memory	1
Sadleir, R.—The Aborigines of Australia	1
Smith, John A.—Dictionary of Popular Names of Plants	1
Stallo, J. B.—The Concepts and Theories of Modern Physics	1
Stocqueler, J. H.—Memoir and Correspondence of Major-General Sir William Nott	2
Sully, James.—Illusions, a Psychological Study	1
The Boats of the World by one of the Craft	1
Thumberg, C. P.—Travels in Europe, Africa and Asia	4

	Volumes.
Vogel, Dr. H.—The Chemistry of Light and Photography	1
Voigt, J. O.—Hortus Suburbanus Calcuttensis	1
Whitney, W. D.—The Life and Growth of Language	1
Wise, T. A.—Commentary on the Hindu System of Medicine	1
Wood, John.—A Journey to the Source of the River Oxus	1
Wurtz, A.—The Atomic Theory	1
Year Book of the Scientific and Learned Societies of Great Britain and Ireland	2

D-2.

Periodicals.

American Naturalist, Nos. 2 to 12 for 1885	1
Annual Register for 1884	1
Asiatic Journal and Monthly Register	41
Asylum Press Almanac for 1886	1
Illustrated London News, Vols. 87 and 88	2
Journal of the Royal Asiatic Society of Great Britain and Ireland, Parts 2, 3 and 4 for 1885 and Part 1 for 1886	1
"London Times," Weekly Edition, Nos. 426 to 481	1
Selections from the Calcutta Review, Vol. 11 for 1884	1
Tropical Agriculturist, Vol. 4, Nos. 9, 10 and 11	1

D-3.

(By Gift) Standard Works.

Benjamin, Rev. R.—Confirmation Class Book	1
Calendar of Letters, City of London, 1350—1370, by Reginald R. Sharpe.	1
Catalogue of the Australian Hydroid Zoophytes, by W. M. Bale ...	1
Catalogue of the Library of the Geological Survey of India, by W. R. Bion	1
Catalogue of Surgical Instruments	1
Catalogue of Sanskrit Manuscripts, North-Western Provinces, Part 9 ...	1
Catalogue of Sanskrit Manuscripts existing in Oudh, for 1884	1
Catalogue of Sanskrit Manuscript in the Library of the Deccan College with Index	1
Catalogue of the Art Collection in the Sir J. J. School of Art, Bombay...	1
Catalogue of the Victoria and Albert Museum, Bombay	1
Centenary Review of the Researches of the Asiatic Society of Bengal, 1784—1883	1
Challenger—Report on the Scientific Results of the Exploring Voyage of the— (Zoology), Vol. 11th	1
Challenger—Report on the Scientific Results of the Exploring Voyage of the— (Narrative of the Cruise), Vol. 1, Parts 1 and 2	2
Challenger—Report on the Scientific Results of the Exploring Voyage of the— (Botany)	1
China Report, by Mr. Hosie, of a journey through Central Sou-chuan, 1884, No. 2	2
Cunningham's Archæological Survey of India, Vols. 19 and 20	2
Duka, T.—Life and Works of Cosma de Körös, (Trübner's Oriental Series)	1
Export Catalogue of Machinery and Hardwares of the Principal Makers in Great Britain	1
Essays relating to Indo-China (Trübner's Oriental Series)	2
Foulkes, Rev. T.—The Pallavas (Pamphlet)	1
Guide to the Collection of Fossil Fishes in the Department of Geology and Palæontology in the British Museum (Pamphlet)	1
Guide to the Galleries of Mammalia in the British Museum (Natural History)	1
Howes, G. B.—Atlas of Practical Elementary Biology	1
Indian Museum Annual Report for 1884-85	1
Indian Art-work in the Calcutta International Exhibition, 1883-84 ...	1
Leggett, E.—Notes on the Mint Towns and Coins of the Muhammadans.	1
Madras Magnetical Observations for 1851 and 1855, by W. S. Jacob, Esq.	1
Manual of the Administration of the Madras Presidency, Vols. 1 and 2 ..	3
Maps prepared for the Madras Manual of the Administration	1
Memorials of the Jeypore Exhibition, 1883, by Thomas H. Hendley ...	4
Mills, James.—The Indian Stock-owner's Manual	1
Mills, James.—Plain Hints on Diseases of Cattle in India	1
Mills, James.—Treatment of Cattle Diseases	1

	Volumes.
Montefiore, Sir Moses, Sacred Memorial Services in memory of the late—	1
Mukharji, T. N.—Agricultural Implements collected for the International Exhibition, 1883-84	1
Oppert, Gustav.—Ne Sutor Ultra Crepidam	1
Oppert, G.—List of Sanskrit Manuscripts in Southern India, Vol. 2nd	1
Pogson, N. R.—Telegraphic Longitude Determinations in India	1
Prudhomme, E. N.—The Banker's Ready Reckoner; Tables showing the rates of Interest per cent. per annum on purchases and sales of Bills of Exchange, &c.	1
Prudhomme, E. N.—The Indian Investor's Guide	1
Prudhomme, E. N.—The Indian Stock Notes Calculator	1
Records of the Saidápet Experimental Farm, by Charles Benson	1
Rees, J. D.—Notes of a Journey from Kasveen to Hamadan across the Karaghan Country	1
Sabda Ratnakaram, a Comprehensive Telugu Dictionary, by B. Sitaramacharyulu	1
Sewell, Robert.—A Letter to Gustav. Oppert, Ph. D., in reply to his Pamphlet Ne Sutor Ultra Crepidam	1
Textile Fabrics of India, Nos. 1 to 1120, 2nd Series	17
Third Report of the Curator of Ancient Monuments in India for 1883-84	1
Wardle, Thomas.—Researches on Silk Fibre	1
Wherry, Rev. E. M.—A Comprehensive Commentary on the Qurán, Vol. 3rd (Trübner's Oriental Series)	1
Wortham, Rev. B. H.—The Satakas of Bhartrihari (Trübner's Oriental Series)	1

D-4.

Periodicals (by Gift).

Bulletin of the Brookville Society of Natural History, No. 1.
"Fort St. George Gazette," Nos. 14 to 51 for 1885, Nos. 1 to 13 for 1886.
"Gazette of India," Nos. 12 to 52 for 1885, and 1 to 13 for 1886.
Indian, Antiquary, by J. Burgess, Vol. 14 for 1885.
Journal of the Asiatic Society of Bengal, Part 1, Nos. 1 to 4 for 1885; Part 2, No. 3 for 1884; Part 2, Nos. 2 and 3 for 1885.
Journal of Indian Arts, Nos. 7, 8 and 9.
Memoirs of the Geological Survey of India, Vol. 21, Parts 3 and 4, and Vol. 22, Parts 1 to 4, for 1885.
Memoirs of the Geological Survey of India (Palæontologia Indica), Vol. 1, S. 4, S. 13; Vol. 3, S. 10; Vol. 1, S. 4, S. 13; Vol. 1, S. 14.
Oesterreichische Monatsschrift fur den Orient, Nos. 1 to 12 for 1885.
Proceedings of the Asiatic Society of Bengal, Nos. 11 and 12 for 1884; Nos. 1 to 9 for 1885.
Proceedings of the Natural History Society of Wisconsin, Vol. 1.
Quarterly Journal of Veterinary Science in India, Nos. 11 to 13 for 1884-85.
Records of the Geological Survey of India, Parts 1 to 4 for 1885.
Statement of Imports and Exports, September to December 1885, and January and February 1886.
The Pandit, a Monthly Publication devoted to Sanskrit Literature, Nos. 1 to 12 for 1885.

D-5.

Reports.

	Copies.
Act to obtain Lands and Mines, &c., Arabic	1
Administration Report on the Jails of Bengal for 1884, by E. V. Westmacott, Esq.	1
Administration Report on the Bombay Jails for 1884	1
Administration Report of the Meteorological Reporter to the Government of Madras for 1884-85	1
Age at which Candidates for the Civil Service of India are admitted for competition in England, being a correspondence between the Government of India and the Secretary of State (Parliamentary Blue Book).	1
Agricultural Statistics, Ireland—General Abstracts showing the Acreage under Crops; also the Number and Description of Live Stock in each Country and Province, 1884-85 (Parliamentary Blue Book)	1
A List of Agricultural Implements and Machines which have been experimented with and found efficient and useful in India for 1884-85.	2
Annual Report on the Administration of the Land Revenue in Assam for 1884-85	1

	Copies.
Annual Report on the Foreign Trade of the North-West Provinces and Oudh, 1885	2
Annual Administration Reports of the Forest Department, Madras Presidency, for 1883-84	1
Annual Report of the Madras Court of Small Causes for 1884	1
Annual Report on the Civil Hospitals and Dispensaries in the Madras Presidency, 1883	1
Annual Report with Tabular Statements on the Condition and Management of the Jails in the North-West Provinces and Oudh for 1884	1
Annual Report on the Gardens of His Highness the Maharana of Oodeypore for 1884	1
Annual Report on the Jails of the Hyderabad Assigned Districts for 1884	1
Annual Report on the Administration of Prisons in the Province of Coorg for 1884	1
Annual Report on the Lunatic Asylums in the Madras Presidency for 1884-85	1
Annual Report of the Director of Agriculture, Bombay Presidency, for 1884-85	2
Annual Report of the Khandesh Experimental Farm for 1885	2
Annual Report, Government Experimental Farm, Hyderabad, Sind, for 1885	2
Annual Report of the Royal Botanic Gardens, Calcutta, for 1884-85	2
Annual Report on the Botanical Gardens of Poona for 1885	2
Annual Report of the Department of Revenue Settlement and Agriculture for 1884-85	1
Annual Volume of the Sea-borne Trade and Navigation of the Madras Presidency for the year 1884-85	1
Assessment of Sub-soil Water, being extracts from the Despatch of the Governor of Bombay, 1885 (Parliamentary Blue Book)	1
Catalogue of the Lucknow Exhibition, 1885	1
Central Asia—Further correspondence respecting Central Asia, with Maps, Nos. 2, 3 and 4 (Parliamentary Blue Book)	2
Central Asia—Circular Despatch addressed by Prince Gortchakow to Russian Representatives abroad for 1864 (Parliamentary Blue Book).	1
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Civil Justice Report of British Burma for 1884	1
Civil Statements of the North-Western Provinces for 1884	1
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Criminal Statements of the North-Western Provinces for 1884	1
East Indian Financial Statement for 1885-86 (Parliamentary Blue Book)	1
Egypt correspondence respecting Ports in the Red Sea and the Gulf of Aden and the Province of Harar, 1885 (Parliamentary Blue Book)	1
Elephant Pipes in the Museum of the Academy of Natural Science, Davenport Jowa	1
Emigration Statistics of Ireland for 1884 (Parliamentary Blue Book)	1
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Home Accounts of the Government of India, 1885 (Parliamentary Blue Book)	1
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Instructions for the preparation of Village Papers in the Punjab for 1885	2
Monograph on Cotton Manufacture in the Punjab	1
Muhammadan Proper Names of Females—A list of —	1
Note on the Agricultural Products of the Hyderabad Assigned Districts, by Surgeon S. Hume, M.B., 1885	1
Note on Agricultural Implements in America	1
New South Wales Technological, Industrial, and Sanitary Museum—Report of the Committee of Management for 1884	1
New South Wales Australian Museum—Report of the Trustees for 1884.	1
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Proceedings of the Director of Public Instruction—Report of the Madras Agricultural College for 1885	1

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Proceedings of the Honorable the Lieutenant-Governor of the Punjab in the Departments of Revenue and Agriculture, 1885	2
Progress Report of Forest Administration in the Hyderabad Assigned Districts for 1884-85	2
Proposed Changes in the Indian' Army System, being copy of correspondence between the Government of India and the Secretary of State for 1884 (Parliamentary Blue Book)	1
Question Papers of the 17th and 18th Lessons	1
Report on the Nagpore Experimental Farm in the Central Provinces for 1884-85...	2
Report on the Railway-borne Traffic of the Central Provinces for 1884-85	1
Report on Public Instruction in the Madras Presidency for 1883-84 ...	1
Report on the Administration of the Madras Presidency for 1884-85 ...	1
Report on the Meteorology of India for 1883, by H. F. Blanford ...	1
Report on the Administration of the Meteorological Department of the Government of India for 1884-85	1
Report on the Revenue Administration of British Burma for 1884-85 ...	2
Report on the Prison Administration of British Burma for 1884 ...	1
Report on the Administration of Civil Justice in the Punjab and its Dependencies for 1884	1
Report on the Administration of (Criminal) Justice in Oudh for 1884...	1
Report on the Administration of the Department of Salt Revenue in the Presidency of Fort St. George, 1883-84...	1
Report on the Judicial Administration (Civil) of the Central Provinces for 1884	1
Report on the Judicial Administration (Criminal) of the Central Provinces for 1884	1
Report on the Jails of the Central Provinces for 1884	1
Report on Criminal and Civil Justice in the Hyderabad Assigned Districts for 1884	1
Report on the Progress and Condition of the Government Botanical Gardens at Saharanpur and Mussoorie for 1885	2
Report on the Administration of Criminal Justice in the Punjab and its Dependencies for 1884	1
Report on the Jails of the Punjab for 1884, by R. Gray, Esq.	1
Report on the Horticultural Gardens, Lucknow, for 1885	2
Report on the Cawnpore Agricultural Station for 1884	2
Report on the Administration of Civil Justice in Oudh for 1884 ...	1
Report on the Jail Administration of the Province of Assam for 1884...	1
Report on the External Trade of Bengal with Nepaul, Sikkim and Bhutan for 1884-85	1
Report on the Revenue Administration of the Punjab and its Dependencies for 1884-85	1
Report on the Operations of the Department of Agriculture and Commerce, North-West Provinces and Oudh, for 1885	2
Report on the Railway-borne Traffic of the North-West Provinces and Oude for 1885	2
Report of the Government Agri-Horticultural Gardens, Lahore, for 1884-85	1
Report of the Indian Famine Commission, Appendix, Vols. 3 and 4. Evidence in reply to inquiries of the Commission (Parliamentary Blue Book)	2
Report of the Indian Famine Commission, Part 3rd (Parliamentary Blue Book)...	1
Report from the Select Committee on Forestry, with the Proceedings of the Minutes of Evidence, 1885 (Parliamentary Blue Book) ...	1
Report on Arboriculture in the Hyderabad Assigned Districts for 1884-85	2
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Report of the Agricultural Department in Assam, by H. Z. Darrah, Esq., for 1884-85...	2
Report on Publications issued and registered in the several Provinces of British India for 1883	1
Report on Sanitary Measures in India in 1883-84, with Miscellaneous Information up to June 1885 (Parliamentary Blue Book)	1
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	Copies.
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Sugar-cane and Sugar Trade in British Burma—Memorandum, by Mr. J. E. Bridges	1
Sugar Bounties, being a copy of correspondence on the subject (Parliamentary Blue Book)	1

D-6.

Patent Office Papers.

Alphabetical Index of Patents and Applicants for Patents of Invention for 1884	1
Illustrated Journal of Patented Inventions from No. 1 to 125 (incomplete)	1
Patents for Inventions, Specifications and Drawings, Vol. 60 for 1883 ...	1
Patents for Inventions, Specifications and Drawings, Vols. 1 to 12 for 1884, Vol. 6 wanting	11
Subject-matter Index of Applicants for Letters Patent for 1884 ...	1
Specifications relating to Railways, Part 2, 1867—1876	1
Specifications relating to the preparation of India Rubber and Gutta-percha, Part 2, 1867—1876	1
Specifications relating to Artificial Leather, Floor-cloth, Oil-cloth, Oil-skin and other Water-proof Fabrics, Part 2, A.D. 1867—1876 ...	1
Specifications relating to Starch, Gum, Size, Glue and other Stiffening and Adhesive Materials, Parts 1 and 2, A.D. 1817—1876	1
Specifications relating to preparing and cutting Cork, bottling Liquids, securing and opening Bottles, &c., Part 2, A.D. 1867—1876 ...	1

E-1.

LIST OF BOOKS ADDED TO THE SCIENTIFIC LIBRARY.

By Purchase (Standard Works).

	Volumes.
Bell, F. J.—The Zoological Record, Vol. 21, for 1884	1
Iconographie der Schalentragenden Europaischen Meeresconchylien, by Dr. W. Kobelt Heft, 3	1
Report of the British Association for the advancement of Science for 1884	1
Semper, Dr. C.—Reisen in Archipel der Philippinen, Die Seewalzen, Vol. 4, Part 3, 1885	1
Semper, Dr. C.—Reisen in Archipel der Philippinen, Die Seewalzen Von Dr. Kurt Lampert	1
Semper, Dr. C.—Reisen in Archipel der Philippinen Land, Mollusken Heft 7	1

E-2.

Periodicals.

Annals and Magazine of Natural History ...	Nos. 85 to 96 for 1885.
Annales de la Société Entomologique de France	Nos. 1 to 4 for 1885.
Annales des Science Naturelles Botanique ...	Vols. 20 and Vols. 1 and 2 for 1885.
Annales des Science Naturelles, Zoologie ...	Nos. 1 to 4 for 1885.
Bulletin de la Société Imperiale des Moscow...	Nos. 1 to 4 for 1884.
Conchologische Mittheilungen	Vol. 2, Nos. 1 to 6.
Ibis—A Quarterly Journal of Ornithology ...	Nos. 9 to 12 for 1885.
Journal de Conchyliologie	Nos. 1 to 4 for 1885.
Journal of the Linnean Society, Botany ...	Nos. 136 to 141 for 1885.
Do. do. Zoology ...	Nos. 107 to 112 for 1885.
Nature—A Weekly Illustrated Journal of Science	Vols. 31 and 32, Nos. 784 to 835, for 1884-85.
Nouvelles Archives du Museum d'Histoire Naturelle	No. 2 for 1884, No. 1 for 1885.
Philosophical Magazine	Nos. 116 to 127 for 1885.
Proceedings of the Zoological Society... ...	Parts 1 to 4 for 1885.
Quarterly Journal of the Geological Society ...	Nos. 161 to 164 for 1885.
Transactions of the Entomological Society ...	Parts 1 to 5 for 1885.
Transactions of the Linnean Society, Zoology.	Vol. 3, Part 3 for 1885.
Transactions of the Palæontographical Society.	Vol. 39 for 1885.

E-3.

By Gift (Standard Works).

	Volumes.
Catalogue of Indian Coins (Greek and Scythic)	1
Catalogue of the Fossil Mammalia in the British Museum, Parts 1 and 2.	2
Catalogue of the Lizards in the British Museum	2
Catalogue of the Passeriformes or Perching Birds in the British Museum, Vol. 10th	1
Catalogue of the Palæozoic Plants in the British Museum	1
Catalogue of the Indian Coins in the British Museum (Muhammadan Coins)	1
Catalogue of the Indian Coins in the British Museum (The Sultans of Delhi)	1
Hawkins, Edward.—Medallic Illustrations of British History	2
Hand List of Mollusca in the Indian Museum, Calcutta, (Gastropoda), Part 2	1
List of the Specimens of Cetacea in the British Museum, by W. H. Flower, LL. D.	1

FISH LIBRARY.

Henshall, J. A.—Book of the Black Bass	1
Lambert, O.—Angling Literature in England	1
Mackenzie, M.—View of the Salmon Fishery of Scotland	1
Norris, T.—American Fish Culture	1
Note on private rights in Fisheries in connection with the Madras Fisheries Bill	1
Report of the Fish Commission, United States, Parts 7, 8, 9 and 10 ...	4
Report on Salmon Fisheries (Ireland)	1
Report of the Inspectors of Irish Fisheries on the Sea and Inland Fisheries of Ireland for 1884	1
Report of the Commissioners appointed to inquire and report upon the complaints that have been made by Line and Drift Net Fishermen of injuries sustained by them in their calling owing to the use of the Trawl Net and Beam Trawl in the Territorial Waters of the United Kingdom for 1885	1
Slack, J. H.—Practical Trout Culture	1
Third Annual Report of the Fishery Board for Scotland for 1884 ...	1
Twenty-fourth Annual Report of the Inspector of Fisheries (England and Wales) for 1884	1
Yarrell, W.—On the growth of the Salmon in Fresh-water (Pamphlet).	1

MADRAS,
2nd *July* 1886.

(Signed) EDGAR THURSTON,
Superintendent, Government Central Museum.

ORDER—dated 23rd August 1886, No. 732, Revenue.

Miscellaneous.

With his letter read above, the Superintendent, Government Central Museum, submits his report for the year 1885-86. Dr. Bidie gave over charge of the office of Superintendent to Dr. Thurston on October 12th, 1885, and His Excellency the Governor in Council took an opportunity of expressing his appreciation of the former officer's valuable services, in reviewing the report for 1884-85.

2. The number of visitors to the museum during the year again shows an advance, being 311,462 as against 272,968 in the previous year. The Government observe with satisfaction that there was an increase in the number of gosha ladies who visited the museum on the days reserved for them. There was also a considerable increase in the number of books consulted during the year. The position of the staff has been recently much improved, and the Government notice with pleasure the interest which the various assistants take in their work. It appears from paragraph 7 that some of the buildings require slight repairs. The attention of the Public Works Department will be invited to the subject.

3. His Excellency the Governor in Council is much indebted to the various gentlemen who contributed to the museum during the year.

4. In conclusion, His Excellency in Council desires to notice the evident zeal and interest of Dr. Thurston in his work. He should, however, avoid burdening his reports with such unnecessary matter as that contained in paragraph 17.

(True Extract.)

(Signed) H. E. STOKES,
Secretary to Government.

To the Superintendent, Government Central Museum.
„ the Board of Revenue.
„ the Public Works Department.
„ the Public Department.
„ Surgeon-General G. Bidie, M.B., C.I.E.
„ the Editors' Table.

Exd. G. Freeman.

70 Copies.

Govt. of {1886} Madras.

REVENUE.

Issued

Recd. *Encl.*

G.O., 23rd August 1886, No. 732.

AUGUST.

Government Central Museum.

Reviewing report of the — for the year 1885-86.

GOVERNMENT OF MADRAS.

PUBLIC DEPARTMENT.

READ—the following paper :—

From A. REA, Esq., First Assistant, Archæological Survey Department, to the Chief Secretary to Government, dated Madras, 17th September 1886, No. 171.

In continuation of this office No. 115, dated Madras, 19th July 1886, recorded in G.O., dated 28th July 1886, No. 1572, Public, I have the honor to submit the following progress report of work since accomplished.

2. This being the "head-quarters" season, the draftsmen have been continuously engaged on duty in Madras. The pencil drawings, as completed, have been regularly despatched to the Director-General.

3. On the 16th instant, I proceeded to inspect the antiquities lately discovered during the excavations at Pallávaram. These consist of a large number of ancient tombs, of very curious and unusual character. They are in the form of burnt earthenware troughs, each averaging 6 feet in length and 18 inches across, rounded on the bottom and ends, and resting on eight or ten feet or more. Others again are simply large round chatties of the same red burnt clay, with one or two feet; the material is about $\frac{3}{4}$ inch in thickness, and is similar to that now used for flower pots. The larger tombs are invariably placed between two boulders—one at the head and the other at the foot; and in several cases, the round tombs referred to are placed on the top of the larger ones. About forty in all have been laid bare, but the whole place seems to be filled with them, and many more can no doubt be brought to light; I discovered one just appearing above the surface of the ground at some distance from the group of those already excavated. They are very curious indeed, and quite different from any of the early tombs hitherto noted. They seem originally to have stood *on* the surface of the ground, and the boulders referred to were evidently intended to keep them in place; the group occupies a position on the slope of a hill, and the soil washing down has now covered them. Some bones and small chatties have been found in them. They have once been covered by lids or slabs of the same material as the troughs themselves, but as the soil has washed down and covered the tombs, these have all been broken by the weight of earth, and the troughs themselves filled with the soil and broken pieces of the lids. Several interesting suppositions might be made in regard to these relics; probably the round chatties contained the remains of the widow of the deceased husband who was placed in the larger tomb, for undoubtedly *sati* would be practised in these days. Then possibly the use of the earthen legs might have been to keep the trough above and clear of the ground; the fire of a funeral pyre, if so applied to the tomb containing the deceased, would then have free access around the receptacle, and everything would be burned up.

A native legend in regard to such tombs is, that in ancient times, people who lived over a hundred years were placed in a tomb, supplied with a few chatties containing water and food, and then left to their fate.

4. I shew a few sketches of the tombs and their contents. Nos. 1 and 2 are the former, and Nos. 3 to 5 are specimens of the small chatties found inside.

No. 1. No. 2.

No. 3. No. 4. No. 5.

5. The tombs laid bare seem at present to be well looked after, but as in several cases the earth has been cleared away from the exterior, and that filling the trough not cleared out, whenever the rains set in, the earth inside will swell and burst them. I expect, too, that on account of the soft, friable nature of the material, they will probably fall to pieces after they receive some rain. I would propose, therefore, that a few of the most typical specimens, complete, should be carefully removed and sent to the Museum.

6. I also visited the cave lately noted to be a Pallava excavation, and photographed by Dr. Oppert.

7. I was asked to examine some "ruins of houses" at a short distance from the tombs; I discovered the ruins to be a fine group of stone "circles," over a dozen in number, each averaging about 6 yards across inside diameter; the blocks composing each "circle" are about 3 or 4 feet in thickness, and laid closely together.

These are probably looked after, but it might be well that instructions be given to have none of them removed till at least one or more have been excavated, and the whole surveyed or photographed. Pieces of pottery lie scattered about these "circles," and excavation might reveal further discoveries.

8. Pallávaram or Palláva-varam, Pallavá-puram (town of the Pallavas) was probably an important place in the days of that dynasty; and likely also in the time of the Cholas. I saw a Chola temple, with Tamil and Sanskrit inscriptions, and some ancient images at Trichalúr, close to these other remains; and there is at least another at Póchalúr, on the other side of Pallávaram.

These give promise of further interesting discoveries, which may throw light on the customs and history of the Pallavas.

ORDER—dated 7th October 1886, No. 2102, Public.

Recorded. The proposal contained in paragraph 5 is approved.

2. The attention of the Collector of Chingleput is drawn to paragraph 7.

(True Extract.)

E. F. WEBSTER,
Chief Secretary.

To the Director-General, Archæological Survey of India.
„ A. Rea, Esq.
„ the Revenue Department.
„ the Public Works Department.

Govt. of {1886} Madras.

PUBLIC.

Issued

Recd. *Encl.*

G.O., 7th October 1886, No. 2102.

OCTOBER.

Archæology.

Recording, with remarks, report of work done by the Archæological Survey Department from the 20th July to 16th September 1886.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following paper:—

From EDGAR THURSTON, Esq., Superintendent, Government Central Museum, to the Secretary to Government, Revenue Department, dated Madras, 9th July 1887, No. 562:—

ABSTRACT.—Submitting report of the Government Central Museum for the year 1886-87.

ENCLOSURES.

ADMINISTRATION REPORT OF THE GOVERNMENT CENTRAL MUSEUM FOR THE YEAR 1886-87.

VISITORS TO THE MUSEUM.—The usual statistical returns of the numbers of visitors to the Museum during the year are given in appendix B. The total number was 233,028 against 311,462 in 1885-86. The greatest number of visitors on any single day was 11,406 on January the 7th (*Thawathasee*) against 25,834 on the corresponding day in 1885, and the decrease was probably due to the effect of the catastrophe at the Madras Fair.

The percentage of female visitors was 37·9 against 42·95 in 1885-86, showing a decrease of 5·05 per cent., whereas the percentage of male visitors was 62·09 against 57·05 in 1885-86, showing an increase of 5·04 per cent.

The number of gosha visitors on the day set apart for them every month was 749 against 1,181 in 1885-86, being a decrease of 432.

2. BUILDINGS.—Some defects in the roof of the main hall were remedied by replastering and white-washing, and some minor repairs, which were rendered necessary by the removal of certain racks and fittings from the walls and pillars of the same hall, were also carried out. The walls of this hall were also white-washed throughout.

The floor of the sleeping quarters in the head taxidermist's house requires raising on account of their dampness during the monsoon, and the same quarters require retiling throughout in addition to a few minor repairs.

A *porte-cochère* still remains to be placed in front of the Superintendent's house.

The want of a water-pandal for the distribution of water and the sale of refreshments, by a Brahmin appointed for the purpose, to the numerous caste visitors to the Museum who frequently picnic in the grounds during the greater part of the day, is much felt, and an unused godown in the Museum compound could, at a trifling cost, be set apart for this purpose.

3. MUSEUM GROUNDS.—The experiment mentioned in my last annual report of planting the rain tree, *Pithecolobium saman*, by the side of the seedling mahogany trees has had a negative result so far, as there is no appreciable difference between the growth of the mahoganies so planted and of those planted under ordinary conditions. Some of the *Bixa orellana* trees flowered during the year, but set no fruit. The *Erythroxylon coca* plants are still growing, and some bore fruit. Several trees were blown down during the gale of November 9th, and among them a fine *Ravenala madagascariensis* which was planted in 1872. This was carefully propped up, but, after living for five months, suddenly collapsed.

The following fruit trees were planted and are all flourishing:—

Anona reticulata	Bullock's heart.	Citrus medica	Citron.
Do. muricata	Sour sop.	Do. bergamia	Lime.
Averrhoa bilimbi	Bilimbi.	Mangifera Indica	Mango.
Do. carambola ...	Carambola.	Eugenia jambos	Rose apple.
Citrus aurantium	Orange.	Punica granatum	Pomegranate.
Do. do.	Sweet orange.	Artocarpus integrifolia ...	Jack.
Do. decumana	Pompelmoes.	Do. incisa	Bread-fruit.

4. The artist was occupied during the greater part of the year in making copies or original drawings and paintings of fishes, Crustacea, &c., which have been framed and placed in the "Fish gallery." He also accompanied me on my tour to Rámesvaram Island, and made pictures of various marine animals in their fresh condition before their colors faded.

The following shells of marine, land, and fresh-water Mollusca from various parts of th Presidency were displayed in cases made for them :—

Hyalœa tridentata	...	Pámban.
Ianthina africana ...	...	Madras.
Do. fragilis ...	...	Ennore.
Do. globosa ...	...	Madras.
Do. iricolor ...	...	Do.
Murex anguliferus	..	Do.
Do. haustellum...	...	Pámban.
Do. tenuispinia	...	Madras.
Do. tribulus ...	...	Vizagapatam.
Fusus colus ...	...	Pámban.
Pyrula bulbosa ...	...	Madras.
Do. cochlidium ...	...	Vizagapatam.
Do. pugilina ...	...	Negapatam.
Do. spirillus ...	...	Vizagapatam.
Pleurotoma crenularis	...	Tranquebar.
Do. javana	...	Vizagapatam.
Do. marmorata	...	Negapatam.
Do. nodifera	...	Madras.
Do. violacea	...	Vizagapatam.
Triton chlorostoma	...	Madras.
Do. cingulatus ...	...	Do.
Do. decipiens ...	...	Do.
Buccinum obsoletum	...	Do.
Do. tranquebaricum.		Do.
Nassa callospira ...	...	Pámban.
Do. collaria ...	...	Madras.
Do. canaliculata	...	Vizagapatam.
Do. coromandel	...	Pulicat.
Do. crenulata ...	...	Madras.
Do. ornata ...	...	Negapatam.
Do. suturalis ...	...	Madras.
Do. unicolorata ...	...	Do.
Eburna spirata ...	...	Do.
Do. zeylanica ...	...	Do.
Purpura bufo ...	...	Vizagapatam.
Do. carinifera	...	Negapatam.
Do. hippocastanum	...	Vizagapatam.
Do. persica ...	...	Do.
Do. sacellum ...	...	Madras.
Ricinula tuberculata	...	Vizagapatam.
Oliva candida ...	...	Pondicherry.
Do. cinnamonea ...	...	Cape Comorin.
Do. gibbosa ...	...	Madras.
Do. ispidula ...	...	Do.
Do. macleayi ...	...	Do.
Do. oriola ...	...	Pondicherry.
Turbinella rapa ...	...	Pámban.
Cymbium indicum	...	Do.
Mitra cinctella ...	...	Madras.
Do. inquinata ...	...	Do.
Harpa ventricosa ...	...	Do.
Cassis areola ...	...	Páumban.
Do. canaliculata	...	Do.
Dolium fasciatum ...	...	Do.
Do. maculatum	...	Do.
Do. olearium ...	...	Do.
Ficula dussumieri ...	...	Do.
Do. reticulata ...	...	Do.
Natica glauca ...	...	Madras.
Do. lineata ...	...	Do.
Do. mamilla ...	...	Do.
Do. melanostoma	...	Do.
Do. tincturata ...	...	Do.
Sigaretus neritoideus	...	Do.
Terebra myuros ...	...	Pulicat.
Do. tigrina ...	...	Madras.
Do. traillü ...	...	Vizagapatam.
Solarium lævigatum	...	Madras.
Do. perspectivum	...	Do.
Do. stramineum	...	Do.
Conus amadis ...	...	Pámban.
Do. figulinus ...	...	Madras.
Do. marmoreus ...	...	Pámban.
Do. punctatus ...	...	Do.
Strombus canarium	...	Do.
Pterocera aurantia	...	Do.
Do. lambis ...	...	Do.
Do. scorpius ...	...	Do.
Cypræa arabica ...	...	*Madras Harbour.*
Do. asellus ...	...	*Cochin.*
Do. caput serpentis	...	*Cape Comorin.*
Do. felina ...	...	Madras.
Do. interrupta	...	Do.
Do. lynx ...	...	Pámban.
Do. nirundo ...	...	Madras.
Do. mauritiana	...	Do.
Do. ocellata ...	...	Quilon.
Do. tigris ...	...	Pámban.
Ovulum birostre ...	...	Do.
Do. volva ...	...	Do.
Cerithum morus	...	Vizagapatam.
Do. vulgatum	...	Do.
Do. microptera	...	Madras.
Do. breviculum	...	Vizagapatam.
Telescopium fuscum	...	Cochin.
Do. sp. ...	...	Do.
Melania collistricta	...	Madras.
Do. tuberculata	...	Do.
Pirena atra ...	...	Vizagapatam.
Littorina cingulifera	...	Madras.
Do. malaccana	...	Do.
Do. rugosa ...	...	Do.
Do. undulata ...	...	Do.
Paludina melanostoma	...	Do.
Paludomus tanjorica	...	Courtaliar River.
Bithynia marginata	...	Madras.
Do. pulchella ...	...	Do.
Ampullaria carinata	...	Red Hill Tank.
Do. glauca ...	...	Madras.
Do. globosa	...	Red Hill Tank.
Turritella attenuata	...	Madras.
Do. columnaris	...	Do.
Do. duplicata	...	Do.
Siliquaria anguina	...	Pámban.
Crucibulum extinctorum	...	Cochin.
Crepidula walshii ...	...	Pámban.
Nerita albicilla ...	...	Do.
Do. costata ...	...	Vizagapatam.
Do. plicata ...	...	Quilon.
Do. rumphii ...	...	Pámban.
Do. semirugosa	...	Vizagapatam.
Neritina meleagris	...	Madras.
Do. mertonia	...	Pulicat.
Do. perrotetiana	...	Do.
Phasianella lineolata	...	Pámban.
Turbo sp. (operculum)		
Rotella suturalis ...	...	Pulicat.
Do. vestiaria ...	...	Do.
Delphinula distorta	...	Pámban.
Trochus niloticus ...	...	Do.
Do. umbilicatus	...	Pámban.
Do. vividus ...	...	Quilon.
Do. sp. (operculum)	...	Cape Comorin.
Haliotis semistriata	...	Pámban.

Dentalium octogonum ...	Cochin.
Patella luzonica	Madras.
Do. rudis	Do.
Do. variegata	Do.
Do. limbata	Do.
Do. variabilis	Do.
Bulla ampulla	Pámban.
Do. cymbalum	Vizagapatam.
Do. fasciata	Negapatam.
Do. glabra	Adyar.
Aplysia leporina	Pulicat.
Helix cacuminifera ...	Nílgiris.
Do. albata	Tinnevelly.
Do. ampulla	Manantoddy.
Do. basileus	Anaimalais.
Do. bistrialis	Madras.
Do. cysis.	Nílgiris.
Do. fallaciosa	Madras.
Do. guerini	Nílgiris.
Do. layardi	Anaimalais.
Do. nicobarica	Nullamallays.
Do. nilagirica	Nílgiris.
Do. retifera	Do.
Do. semirugata	Madras.
Do. solata	Nílgiris.
Do. theodari	Tiruválúr.
Do. thyreus	Nílgiris.
Do. tranquebarica ...	Tranquebar.
Do. vitellina	Madras.
Streptaxis perroteti ...	Nílgiris.
Bulimus jerdoni	The Deccan.
Do. malabaricus ...	Do.
Do. punctatus ...	Madras.
Oleacina tornensis ...	Do.
Limnæa acuminata ...	Sríperumbudur.
Planorbis coromandus ...	Madras.
Cyclotus filocinctus ...	Nílgiris.
Pterocyclos bilabiatus ...	Salem.
Cyclophorus cuspidatus ...	Nílgiris.
Do. stenostomus ...	Do.
Cyathopoma selicinctum ...	Madura.
Cataulus recurvatus ...	Anaimalais.
Pholas bakeri	Madras.
Teredo corniformis ...	Pámban.

Solen vagina	Ennore.
Machæra radiata	Madras.
Mactra attenuata	Do.
Do. symmetrica ...	Do.
Soletellina diphos	Do.
Tellina blainvillei	Pulicat.
Donax cuneata	Madras.
Do. deltoides	Do.
Do. scortum	Ennore.
Do. pristis	Pondicherry.
Venus lamarckii	Pámban.
Do. reticulata	Do.
Do. scabra	Madras.
Cytherea ovum	Do.
Dione erycina	Pámban.
Do. festiva	Do.
Meroe hians	Madras.
Do. picta	Do.
Do. solandri	Do.
Do. truncata	Do.
Circe scripta	Pámban.
Tapes bruguieri	Vizagapatam.
Do. malabarica	Cochin.
Do. pinguis	Sadras.
Do. rotundata	Pámban.
Venerupis sp.	Cape Comorin.
Cardita antiquata	Ennore.
Unio marginalis	Madras.
Do. wynegungaensis ...	Do.
Mytilus latus	Do.
Do. smaragdinus ...	Sonnapur River.
Avicula fucata	Tuticorin.
Do. do. young ...	Do.
Do. do. pearls from.	Do.
Do. do. young, attached to branches of Gorgonia	Do.
Pinna japonica	Cochin.
Arca granosa	Madras.
Do. velata	Ennore.
Pecten flabelliformis ...	Madras.
Do. senatorius	Pámban.
Do. tranquebaricus ...	Madras.
Placuna placenta	Do.

The following is a list of the "spirit specimens" of fishes which were arrranged on the new shelves in the fish gallery :—

ELASMOBRANCHII.

A. Selachoidei—Sharks.

Family Carchariidæ.

Carcharias melanopterus ...	Madras.
Do. sp. ...	Quilon.

Family Scylliidæ.

Stegostoma tigrinum ...	Madras.

B. Batoidei—Rays.

Family Torpedinidæ.

Narcine timlei	Quilon.
Do.	Madras.

Teleostei.

Family Percidæ.

Lates calcarifer	Pámban.
Serranus hexagonatus ...	Do.
Do. lanceolatus ...	Madras.
Do. salmoides ...	Pámban.
Do. diacanthus ...	Do.
Lutianus erythropterus ...	Madras.
Do. quinquelineatus...	Cochin.

Lutianus fulviflamma ...	Pámban.
Do. johnii	Cochin.
Do. decussatus ...	Pámban.
Do. sp.	Do.
Therapon jarbua	Cochin.
Diagramma crassispinum ...	Pámban.
Do. griseus ...	Cochin.
Lobotes surinamensis ...	Do.
Gerres filamentosus ...	Do.
Do. oyena	Quilon.
Do. do.	Pámban.
Scolopsis vosmeri	Do.
Do. do. ...	Madras.
Apogon kalosoma ...	Pámban.
Do. nigripennis ...	Madras.
Cheilodipterus quinquelineatus	Pámban.

Family Squamipinnes.

Chætodon collaris ...	Pámban.
Do. auriga	Do.
Do. sp.	Do.
Drepane punctata	Quilon

Family Mullidæ.

Upeneus indicus ... ... Pámban.
Do. do. ... ... Cochin.
Do. sp. ... ... Do.
Upeneoides tragula ... Pámban.

Family Sparidæ.

Pagrus spinifer ... ... Gopálpur.
Pimelepterus cinerascens ... Pámban.

Family Scorpœnidæ.

Scorpæna sp. ... ... Madras.
Pterois miles ... ... Pámban.
Apistus carinatus ... ... Madras.

Family Teuthidæ.

Teuthis oramin ... ... Pámban.

Family Berycidæ.

Holocentrum rubrum ... Pámban.

Family Kurtidæ.

Pempheris molucca ... Madras.
Do. mangula ... Do.

Family Sciœnidæ.

Sciæna maculata ... ... Cochin.

Family Acronuridæ.

Acanthurus mata ... ... Quilon.
Do. do. ... Pámban.
Do. triostegus ... Madras.

Family Carangidæ.

Caranx leptolepis ... ... Quilon.
Chorinemus lysan ... ... Cochin.
Platax teira ... ... Pámban.
Equula ruconius ... ... Cochin.
Do. edentula ... ... Do.
Do. insidiatrix... ... Quilon.
Lactarius delicatulus ... Pámban.

Family Scombridæ.

Scomber microlepidotus ... Cochin.
Cybium guttatum ... Quilon.
Echeneis remora ... ... Madras.
Do. naucrates ... ... Pámban.
Do. do. head, showing sucking disc. Do.

Family Trachinidæ.

Sillago sihama ... ... Cochin.

Family Pediculati.

Antennarius nummifer ... Pulicat.

Family Cottidæ.

Platycephalus insidiator ... Quilon.

Family Gobiidæ.

Gobius giurus ... ... Trichur.
Do. biocellatus ... ... Cochin.
Boleophthalmus sp. ... Pámban.
Callionymus lineolatus ... Madras.
Gobioides sp. ... ... Pámban.

Family Blenniidæ.

Salarias frenatus ... ... Quilon.
Do. sp. ... ... Do.

Family Mastacembelidæ.

Mastacembelus armatus ... Trichur.
Do. pancalus ... Do.

Family Mugilidæ.

Mugil cunnesius ... ... Cochin.
Do. poicilus ... ... Do.

Family Ophiocephalidæ.

Ophiocephalus striatus ... Cochin.
Do. punctatus ... Trichur.

Family Labyrinthici.

Anabas scandens ... ... Madras.

Family Pomacentridæ.

Amphiprion sebæ ... ... Pámban.
Glyphidodon cœlestinus ... Do.
Do. notatus ... Do.

Family Labridæ.

Platyglossus dussumieri ... Quilon.
Do. do. ... Pámban.
Do. sp. ... Do.
Julis lunaris ... ... Covelong.
Hemigymnus sp. ... ... Pámban.
Pseudoscarus chrysopoma... Do.
Do. rivulatus ... Do.

Family Chromides.

Etroplus suratensis ... Trichur.

Family Pleuronectidæ.

Synaptura orientalis ... Quilon.
Do. cornuta ... Madras.
Cynoglossus sp. ... ... Cochin.
Do. sp. ... ... Quilon.
Plagusia marmorata ... Pámban.
Do. sp. ... ... Do.

Family Siluridæ.

Plotosus canius ... ... Cochin.
Chaca lophioides ... ... Do.
Macrones malabaricus ... Trichur.
Do. chryseus ... Do.
Do. cavasius ... Bhávani Ri
Do. seenghala ... Do.
Arius subrostratus ... Quilon.
Do. thalassinus ... Do.

Family Scopelidæ.

Saurida tumbil ... ... Quilon.

Family Cyprinidæ.

Barbus chrysopoma ... Madras.
Do. denisonii ... Travancore.
Chela bacaila ... ... Madras.

Family Cyprinodontidæ.

Haplochilus rubrostigma ... Cochin.
Do. lineatus ... Do.

Family Scombresocidæ.

Belone annulata ... ... Quilon.
Hemiramphus cantori ... Cochin.
Do. xanthopterus. Do.

Family Clupiidæ.

Engraulis malabaricus ... Cochin.
Do. indicus ... ... Do.
Chatoessus nasus ... ... Do.
Clupea longiceps ... ... Quilon.
Do. do. ... ... Beypore.
Do. toli ... ... Cochin.
Do. sp. ... ... Do.
Dussumieria acuta ... ... Do.

Family Notopteridæ.

Notopterus kapirat ... Madras.

Family Murænidæ.

Anguilla bengalensis ... Madras.
Muræneſox cinerascens ... Do.
Muræna undulata ... ... Do.
Do. tessellata ... ... Pámban.
Do. sp. ... ... Do.

Family Syngnathidæ.

Syngnathus serratus .. Pámban.

Family Scelerodermi.

Triacanthus brevirostris ... Cochin.
Do. strigilifer ... Pámban.
Anacanthus barbatus ... Cochin.
Balistes sp. ... ... Pámban.
Monacanthus sp. ... ... Do.
Ostracion cornutus ... Do.
Do. nasus ... ... Do.

Family Gymnodontes.

Tetrodon inermis ... Quilon.
Do. margaritatus ... Pámban.
Do. sp. ... ... Quilon.
Diodon hystrix ... ... Madras.

The following is a list of the stuffed fishes which were placed in the fish gallery :—

ELASMOBRANCHII.

A. SELACHOIDEI—SHARKS.

Family Carchariidæ.

Carcharias melanopterus ... Madras.
Galeocerdo rayneri ... Do.
Zygæna blochii ... ... Do.

B. BATOIDEI—RAYS.

Family Pristidæ.

Pristis cuspidatus ... ... Madras.

Family Rhinobatidæ.

Rhinobatus granulatus ... Cochin.
Do. halavi ... Madras.

Family Myliobatidæ.

Myliobatis Nieuhofii ... Madras.

TELEOSTEI.

Family Percidæ.

Lutianus johnii ... ... Cochin.
Do. roseus ... ... Do.
Do. sp. ... ... Do.
Therapon jarbua ... ... Do.
Lobotes surinamensis ... Do.
Gerres filamentosus ... Do.

Family Squamipinnes.

Holocanthus annularis ... Madras.
Scatophagus argus ... Cochin.
Ephippus orbis ... ... Do.

Family Sparidæ.

Chrysophrys berda ... Cochin.

Family Sciænidæ.

Sciæna maculata ... ... Cochin.
Sciænoides sp ... ... Do.
Corvina carutta ... ... Do.

Family Scombridæ.

Thynnus thunnia ... ... Madras.

Family Cottidæ.

Platycephalus insidiator ... Cochin.

Family Mugilidæ.

Mugil poicilus ... ... Cochin.

Family Chromides.

Etroplus suratensis ... Cochin.

Family Pleuronectidæ.

Psettodes erumei ... ... Cochin.

Family Siluridæ.

Arius thalassinus ... ... Cochin.
Do. subrostratus ... ... Do.

Family Gymnodontes.

Tetrodon stellaris ... ... Madras.

The following Reptilia were stuffed during the year :—

Emys trijuga—Pond Tortoise.
Emyda granosa, The Bungoma.
Varanus dracæna *

Hydrosaurus salvator, the ocellated water lizard. From the collection in the People's Park. The animal died as the result of perforation of the coats of its stomach by a twig, which it had swallowed.

The following list comprises the birds, obtained for the most part on the Shevaroys or locally in the Madras bazaars, which were stuffed during the year : —

Latin Name.	English Name.	Jerdon Number.	Latin Name.	English Name.	Jerdon Number.
Neophron perenopterus.	White scavenger vulture	6	Iora zeylanica	Black-headed green bulbul.	467
Astur palumbarius ..	Goshawk	21	Oriolus indicus ..	Black-naped Indian oriole.	471
Micronisus badius ..	Shikra	23	Copsychus saularis ..	Magpie-robin	475
Poliornis teesa	White-eyed buzzard ..	48	Kittacincla macroura ..	Shama	476
Circus æruginosus ..	Marsh harrier	54	Thamnobia fulicata ..	Indian black robin ..	479
Urrua bengalensis ..	Rock-horned owl ..	69	Pratincola caprata ..	White-winged black robin.	481
Athene brama	Spotted owlet	76	Motacilla maderaspatana.	Pied wagtail	589
Merops viridis	Indian bee-eater ..	117	Calobates sulphurea ..	Grey and yellow wagtail	592
Coracias indica	Indian roller	123	Corvus splendens ..	Common Indian crow ..	663
Alcedo bengalensis ..	Indian king-fisher ..	134	Dendrocitta rufa ..	Common Indian magpie.	674
Palæornis rosa	Rose-headed Parrakeet.	149	Temenuchus pagodarum	Black-headed myna ..	687
Megalaima viridis ..	Small green barbet ..	194	Do. malabaricus.	Grey-headed myna ..	688
Upupa nigripennis ..	Indian hoopoe ..	255	Munia unduiata ..	Spotted munia	699
Lanius erythronotus ..	Rufous-backed shrike ..	257	Alawda gulgula ..	Indian sky-lark ..	767
Lanius hardwickii ..	Bay-backed shrike ..	260	Palumbus elphinstonei .	Nilgiri wood-pigeon ..	787
Graucalus macei ..	Large cuckoo shrike ..	270	Galloperdix spadiceus ..	Red spur-fowl	814
Pericrocotus flammeus ..	Orange minivet ..	272	Ortygornis ponticeriana.	Grey partridge	822
Dicrurus macrocercus ..	Common drongo shrike.	278	Turnix taigoor ..	Black breasted bustard quail.	832
Chaptia ænea	Bronzed drongo ..	282	Ægialitis philippensis .	Indian ringed plover ..	849
Orocetes cinclorhynchus.	Blue-headed chat-thrush	353	Himantopus candidus ..	Stilt or long-legs ..	898
Geocichla cyanotus ..	White-winged ground thrush.	354	Butorides javanica ..	Little green heron ..	931
Pomatorhinus horsfieldii	Southern scimitar babbler.	404			
Otocompsa jocosa ..	Red-whiskered bulbul.	460			
Pycnonotus hæmorhous.	Madras bulbul	462			
Phyllornis jerdoni ..	Common green bulbul ..	463			

* This animal is, according to Kelaart (Prodr. Faun Ceyl., p. 147), called in Ceylon the *Goana*. In S. India it is popularly and wrongly called the *Iguana*.

The following eggs of Indian birds, for many of which the Museum is indebted to W. Mahon Daly, Esq., were mounted and placed in the Museum :—

Latin Name.	English Name.	Jerdon Number.	Latin Name.	English Name.	Jerdon Number.
Gyps bengalensis ..	Common white-backed or brown vulture ..	5	Acridotheres tristis ..	Common myna ..	684
Neophron percnopterus.	White scavenger vulture	6	Do. ginginianus ..	Bank myna	685
Aquila fulvescens ..	Tawny eagle	29	Do. fuscus ..	Brown myna	686
Haliætus fulviventer ..	Ring-tailed sea eagle..	42	Temenuchus pagodarum	Black-headed myna ..	687
Milvus govinda ..	Common Pariah kite ..	56	Temenuchus malabaricus	Grey-headed myna ..	688
Athene brama	Spotted owlet	76	Ploceus baya	Common weaver bird..	694
Hirundo domicola. ..	Nilgiri house swallow.	83	Do. manyar ..	Striated weaver bird ..	695
Do. filifera ..	Wire-tailed swallow ..	84	Do. bengalensis ..	Black-throated weaver bird	696
Do. daurica ..	Red-rumped swallow ..	85	Munia malacca ..	Black-headed munia ..	697
Cotyle riparia	European sand-martin.	87	Do. rubronigra ..	Chestnut-bellied munia.	698
Do. concolor ..	Dusky crag-martin ..	90	Estrelda amandava ..	Red wax-bill	704
Caprimulgus asiaticus ..	Indian night-jar ..	112	Passer indicus	Indian house sparrow ..	706
Merops viridis	Indian bee-eater ..	117	Spizalauda deva ..	Small crested lark ..	765
Coracias indica	Indian roller	123	Alauda gulgula ..	Indian sky-lark ..	767
Halcyon fuscus	White-breasted kingfisher	129	Crocopus phœnicopterus	Bengal green-pigeon ..	772
Alcedo bengalensis ..	Indian king-fisher ..	134	Columba intermedia ..	Blue rock-pigeon ..	788
Ceryle rudis	Pied king-fisher ..	136	Turtur cambayensis ..	Little brown dove ..	794
Megalaima viridis ..	Small green barbet ..	194	Do. suratensis ..	Spotted dove	795
Eudynamys orientalis ..	Indian koel	214	Do. riseria	Common ring dove ..	796
Centropus rufipennis ..	Common coucal ..	217	Pavo cristatus	Pea-fowl	803
Leptocoma zeylanica ..	Amethyst-rumped honey-sucker ..	232	Gallus sonneratii ..	Grey jungle fowl ..	813
Lanius lahtora	Indian grey shrike ..	256	Galloperdix spadiceus..	Red spur-fowl	814
Do. erythronotus ..	Rufous-backed shrike..	257	Francolinus vulgaris ..	Black partridge ..	818
Do. hardwickii ..	Bay-backed shrike ..	260	Caccabis chukor ..	Chukor partridge ..	820
Tephrodornis pondiceriana	Common wood shrike ..	265	Ortygornis ponticeriana	Grey partridge ..	822
Pericrocotus flammeus..	Orange minivet ..	272	Perdicula erythrorhyncha	Painted bush quail ..	828
Dicrurus macrocercus ..	Common drongo shrike.	278	Coturnix coromandelica	Black-breasted quail ..	830
Do. longicaudatus .	Long-tailed drongo ..	280	Eupoditis edwardsii ..	Indian bustard ..	836
Chaptia ænea	Bronzed drongo ..	282	Sypheotides auritus ..	Lesser florikin ..	839
Orocetes cinclorhynchus.	Blue-headed chat-thrush	353	Lobivanellus goensis ..	Red-wattled lapwing..	855
Geocichla cyanotus ..	White-winged ground-thrush	354	Sarciphorus bilobus ..	Yellow-wattled lapwing	856
Merula simillima ..	Nilgiri black-bird ..	360	Hoplopterus ventralis..	Spur winged lapwing ..	857
Pyctorhis sinensis ..	Yellow-eyed babbler ..	385	Grus antigone	Sarus crane	863
Dumetia hyperythra ..	Rufous-bellied babbler.	397	Rhynchæa bengalensis.	Painted snipe	873
Do. albogularis ..	White-throated wren-babbler	398	Metopidius Indicus ..	Bronze-winged jacana.	900
Trochalopteron cachinnans	Nilgiri laughing thrush	423	Hydrophasianus chirurgus	Pheasant-tailed jacana	901
Malacocercus griseus ..	White-headed babbler.	433	Porphyrio poliocephalus	Purple coot	902
Do. malabaricus ..	Jungle babbler ..	434	Fulica atra	Bald coot	903
Do. malcolmi.	Large grey babbler ..	436	Gallicrex cristatus ..	Water cock	904
Otocompsa jocosa ..	Red-whiskered bulbul.	460	Gallinula burnesii ..	Small water hen ..	906
Pycnonotus pygæus ..	Common Bengal bulbul	461	Herodias alba	Large egret	925
Do. hæmorhous ..	Madras bulbul	462	Do. egrettoides..	Smaller egret	926
Iora zeylanica	Black-headed green bulbul	467	Buphus coromandus ..	The cattle egret ..	929
Copsychus saularis ..	Magpie robin	475	Ardea leucoptera ..	The pond heron ..	930
Pratincola atrata ..	Nilgiri black robin ..	482	Tantalus leucocephalus.	Pelican ibis	938
Cercomela fusca ..	Brown rock chat ..	494	Platalea leucorodia ..	Spoonbill	939
Orthotomus longicauda.	Indian tailor-bird ..	530	Anastomus oscitans ..	Shell ibis	940
Prinia socialis	Dark ashy wren warbler	534	Threskiornis melanocephalus	White ibis	941
Drymoipus inorratus ..	Common wren warbler	543	Podiceps philippensis ..	Little grebe	975
Zosterops palpebrosus ..	White-eyed tit ..	631	Sylochelidon caspius ..	Largest tern	982
Parus cinereus	Indian grey tit ..	645	Gelochelidon anglicus .	Gull-billed tern ..	983
Corvus culminatus ..	Indian corby	660	Hydrochelidon indica ..	Small marsh tern ..	984
Do. splendens ..	Common Indian crow..	663	Sterna seena ..	Large river tern ..	985
Dendrocitta rufa ..	Common Indian magpie	674	Sternula minuta ..	Little tern	988
			Thalasseus cristatus ..	Large sea tern ..	989
			Graculus carbo ..	Large cormorant ..	1005
			Do. sinensis ..	Lesser cormorant ..	1006
			Plotus melanogaster ..	Indian snake-bird ..	1008

The Museum is indebted to the President of the Municipality for the carcases of many animals which died during the year in the People's Park.

The following mammalia were stuffed or preserved in alcohol :—

Macacus radiatus ... ... Madras monkey.
Portax pictus ... ... Nilgai.
Rusa aristotelis ... ... Samber.

* Manis pentadactyla	Indian scaly ant-eater.
* Tupaia ellioti †	Madras tree-shrew.
Pteropus edwardsi	Large fox-bat.
* Embryo do.	Do.
* Cynopterus marginatus	Small fox-bat.
* Rhinopoma hardwickii	Long-tailed leaf-bat.
Felis tigris, young	Tiger cub.
Do. melas	Black panther.
Do. viverrina	Large tiger cat.
Herpestes griseus	Madras mungoose.

The following skeletons and osteological specimens were prepared :—

1. *Skeletons—Mammalia.*

Canis familiaris	The Pariah dog.
Do. pallipes	Indian wolf.
Felis leo	Lioness.
Do. tigris	Tiger.
Do. pardus	Pard.
Paradoxurus musanga	Common tree cat.
Equus caballus	Horse.
Sus indicus	Common pig.
Rusa aristotelis	Sambar.
Ovis aries	Domestic sheep.
Bos indicus	Domestic bull.
Manis pentadactyla	Scaly ant-eater.
Petropus edwardsi	Large fox-bat.

2. *Osteology—Mammalia.*

Skull of Rusa aristotelis	Samber.
Do. Antelope bezoartica	Indian antelope.
Do. Bos indicus	Domestic bull.
Do. Macacus radiatus	Madras monkey.

3. *Skeletons—Birds.*

Neophron percnopterus	White scavenger vulture.
Haliætus leucogaster	Grey-backed sea eagle.

4. *Osteology—Birds.*

Skull of Corvus culminatus	Indian corby.
Do. do. splendens	Common Indian crow.
Do. Terekia cinerea	Avoset sandpiper.
Do. Phœnicopterus roseus	Flamingo.

5. *Skeleton—Reptilia.*

Chelonia virgata *	Edible turtle.

6. *Osteology—Reptilia.*

Skull of Python molurus	Rock snake.

13. Numismatics.—The Museum is indebted to the Asiatic Society of Bengal and the Bombay Branch Royal Asiatic Society for the donation of numerous gold, silver, and copper coins, and, among others, to His Highness Krishna Raja of Calicut for the donation of a half mohur of Tippoo Sultan. A catalogue of the coinage of Mysore was in the press at the end of the year, many of the coins described in which were obtained by me at Bangalore, Mysore and Seringapatam. In addition to the coins of Mysore, the following series were arranged: Parthian, Greek and Indo-Scythic, Indo-Portuguese, Ceylon, Pondicherry, and the coins of the Patan Sultans of Delhi. In the arrangement of these coins, valuable assistance was given by Captain R. H. C. Tufnell.

14. Raw Products.—The commencement was made out of a sum of Rs. 300 granted for the purpose of a collection of raw products, limited to the Madras Presidency. These it is my proposal to arrange systematically in a room leading out of the main hall, together with a series of sections of forest woods, some of which have been already presented to the Museum by J. S. Gamble, Esq., Conservator of Forests.

During the year the following raw products were collected by the Herbarium-keeper :—

Vegetable drugs.	Dried fruits and seeds.
Mineral drugs.	Spices and condiments.
Animal drugs.	Starches.
Medicinal oils.	Oils and oil-seeds.
Intoxicating drugs.	Dyes.
Pulses.	Tans.
Grains.	Mordants.

* Signifies that the animal was preserved in alcohol.
† Obtained on the Shevaroys.

15. TAXIDERMIC DEPARTMENT.—The following is a summary of the work done:—

Birds stuffed	70	Insecta collected	651
Mammalia stuffed	9	Crustacea collected	65
Reptilia stuffed	4	Mollusca shells collected ...	28
Fishes stuffed	34	Skeletons prepared	17
Fishes preserved in alcohol.	140	Skulls prepared	9

The head and third taxidermists accompanied me on my tour to Rámesvaram Island.

16. TOURS.—During the year two tours were made—(1) to Rámesvaram Island, of which a preliminary report was in the press at the end of the year, containing a list of the specimens obtained which had been identified. Many of the specimens collected on that occasion were sent to Europe for identification, which was impossible in the absence of specimens for comparison; (2) I accompanied the Master Attendant and the Secretary to Government, Public Works Department, on their annual inspection of light-houses, and had an opportunity of seeing the nature of the coast line from Mangalore to Gopálpur and of forming an opinion as to which parts of the coast will be most profitably explored on the occasion of future tours.

GOVERNMENT CENTRAL MUSEUM,
EGMORE,
9th July 1887.

(Signed) EDGAR THURSTON,
Superintendent, Government Central Museum.

APPENDICES.

A.

GENERAL LIST OF THE CONTRIBUTIONS, &C., RECEIVED FOR THE GOVERNMENT CENTRAL MUSEUM FROM 1ST APRIL 1886 TO 31ST MARCH 1887.

		NO.
Agri-Horticultural Gardens, Superintendent of—		
Casuarina pole bored by carpenter bee (Xylocopa sp.)	1	2
Fruit of Crescentia cajuti	1	
Anderson, Captain—		
Horned owls (Urrua bengalensis)		3
Antonio, Mr. C. J. J., Pudupet—		
Breccia from the foot of the Whitefield Kaolin (?) Knoll	Lot	
Whitefield feldspars and Kaolin	„	
Rock crystals and quartz from Whitefield	„	
Quartz detritus of the Whitefield Kaolin as washed off at the works	„	16
Hæmatite	1	
Copper coins	11	
Atkinson, E., Esq., Accountant-General, Calcutta—		
Butterflies, moths, &c., from Sikkim Himalayas		390
Baker, Miss, Peermaad—		
Cicada	1	2
Stick insect (Bacillus sp.)	1	
Bauliah Naidoo Garu, B., M.R.Ry., Head Translator, High Court—		
Figures illustrating native female costume		2
Benson, C., Esq., Assistant Director of Agriculture—		
Larvæ of Colæoptera, sp?		Collection.
Bidie, Surgeon-General G., M.B., C.I.E.—		
Specimen of magnesite		1
Bisset, A., Esq.—		
Scotch terrier		1
Bliss, H. W., Esq., Commissioner of Salt and Abkári Revenue—		
Crystallized sulphate of calcium (plaster of Paris) from Kharagora in the Runn of Kutch		1
Brockman, Dr. Drake—		
Moth (Antheræa mylitta)		1
Campbell, Madam, G.—		
Sphinx moth sp.		1
Carr, J., Esq., Solicitor, Egmore—		
Rock specimens		3
Carter, H. R. P., Esq., Chetput—		
Head and skin of a wolf (Canis pallipes)	1	18
Bats from Sholingur	3	
Hedge hog (Erinaceus micropus)	1	
Mouse from Erode (Mus sp.)	1	
Shrew mouse (Sorex sp.)	1	
Snakes	4	
Larva of a butterfly	1	
Moth	1	
Queen white-ants (Termites)	3	
Mygale sp.	2	

		NO.
Chief Engineer, Public Works Department, Madras—		
Mass of vegetable mould excavated near the backwater leading to Covelong bar	1	1
Coimbatore, Collector of—		
Impressions on paper of seals from Kollegál and Erode taluks	4	5
A copy of a copper grant	1	
Colquhon, Adam B., Esq.—		
Fish (Julis lunaris)	1	1
Cox, Colonel H. W. H.—		
Fruits (Hura crepitans)	3	3
Dale, Mr. J., Poonamallee—		
Copper coin	1	1
Daly, William Mahon, Esq., Yercaud, Shevaroys—		
Tree shrew (Tupaia elliotti)	1	81
Spider (Mygale sp.)	1	
Cicada	2	
Birds' eggs	76	
Fungus (Sclerotium stipitatum) from white-ants' nest	1	
Damodarum, R., Naidoo, M.R.Ry.—		
Snake (Tropidonotus stolatus)	1	3
Fish (Stegostoma tigrinum)	1	
Wasp (Vespa vulgaris)	1	
Director, Geological Survey of India, Calcutta—		
Specimen of Namianthal Meteorite	1	1
Empson, Major R. A., Gunpowder Factory, Madras—		
Moths (Actias selene)	2	2
Fairlie, F., Esq.—		
Ceylon Lepidoptera	Species 17	17
Fiddian, J. P., Esq., Chingleput—		
Beetle (Cerambyx sp.)	1	1
Foote, R. B., Esq., F.G.S., Geological Survey of India—		
Crustacea, shells, corals, sponges, &c.	30	32
Shells	Lot	
Rock specimen	1	
Gale, C. E., Esq.—		
Skin of Crocodilus sp.	1	1
Gamble, J. S., Esq., Conservator of Forests, Northern Circle—		
Wood specimens	134	137
Bats	2	
Snake	1	
Ganjam, Collector of—		
Impressions of seals	5	5
Garstin, J. H., Esq.—		
Red spur-fowl (Galloperdix spadiceus)	1	13
Orange minivet (Pericrocotus flammeus)	1	
Eggs of Lorry (Eclectus sp.)	2	
Silver coin	1	
Copper coins	8	
Gleeson, J. M., Esq.—		
Land Planarian (Bipalium univittatum)	1	1
Gompertz, H., Esq., Yercaud—		
Stone hammer and celt from Shevaroys	2	2
Governor in Council, His Excellency the—being returned exhibits from the Indo-Colonial Exhibition—		
Musical instruments	17	488
Gold and silver jewelry, special collection from Madura	9	
Do. general collection	146	
Toda, Badaga and Kota jewelry	16	
South Canara jewelry	2	
Ornaments in the baser metals	30	
Do. in brass, copper and alloys	76	
Sacrificial utensils	17	
Articles in mixed metals	9	
Lacquered ware	4	
Lapidaries work	1	
Cotton fabrics	50	
Wool fabrics	3	
Silk fabrics	55	
Hand-printed fabrics	52	
Saddlery	1	

		NO.
Governor, The Right Honorable the—		
Earthenware pot with cover found in the ruins of Yellamah's temple, Penukonda, Anantapur District	1	2
Tail of Rayfish (Trygon sp.) cut and ornamented with a silver handle	1	
Hackett, Dr. A. L., Kilpauk—		
Snake (Lycodon aulicus)		1
Hasted, Colonel R.E.—		
Eggs of Pond Tortoise (Emys trijuga)		Lot.
Havell, E. B., Esq., Superintendent, School of Arts, Madras—		
Ant-eater (Manis pentadactyla)	1	3
Fish (Stegostoma fasciatum)	1	
Leaf insect (Phyllium)	1	
Havelock, Mrs. Ann L., Bangalore—		
Bark used for writing on in Cashmere—		1
Hawkes, Colonel H. P.—		
Bangles worn by hill tribes, &c.		10
Henderson, Dr., Egmore—		
Ant-eater (Manis pentadactylas)		1
Honorary Secretary, Bombay Branch of the Royal Asiatic Society—		
Gold coins	3	14
Silver coins	11	
Honorary Secretary (Philological) Asiatic Society of Bengal and Calcutta—		
Gold coins	25	97
Silver coins	63	
Copper coins	8	
Coin made of mixed metal	1	
Hunt, Colonel—		
Fish (Scatophagus argus)		1
Iya Pillay, Eleazer John, Mr.—		
Silver coin	1	9
Copper coins	8	
Jackson, G., Esq.—		
Hornet's nest (Vespa sp.)		1
Johnson, W. E., Esq.—		
Fish (Megalops cyprinoides)	1	2
Crustacean (Macrobrachium longidigitum)	1	
Jones, J. A., Esq., Vice-President, Municipal Commission, Madras—		
Grass-hopper (Truxalis sp.)		1
King, A., Esq., Vepery—		
Copper coins		8
King, Dr. G., Superintendent, Royal Botanic Gardens, Seebpore near Calcutta—		
Dried specimens of Ficus plants		98
Kistna, Acting Collector of—		
Locusts (Œdipoda sp.)		Collection.
Kotilingam, Mr. J. P.—		
Shells (Lepas anserifera) attached to a piece of wood		5
Krishnan Rajah, H. H., Calicut—		
Half mohur of Tippu Sultan		1
Lee, Mr. J. P., Egmore—		
Birds		4
Logan, John, Esq., Coorg—		
Lac insect (Coccus lacca)		1
Madura, Collector of—		
Locusts (Œdipoda sp.)		Collection.
Maitland, Dr. J.—		
Fish (Notopterus kapirat)	1	2
Australian sea-weeds, &c.	Lot	
McNally, Dr. C. J.—		
Weaver Bird's nest (Ploceus baya)		1
Mitchell, J. M., Esq.—		
Wood and bark of Acacia leucophlæa	1	12
A bottle of spirit prepared from the above	1	
Apparatus (earthen and copper) used in distilling the above	2	
Rock specimens	7	
Chrysalis of a moth	1	
Morgan, R., Esq., Forest-officer, Malabar—		
Specimens of Kaolin and iron sand stones from the Pálghat hills		Lot.
Mysore Government Museum—		
Photograph of sculptures		1

			NO.
Nellore, Collector of—			
Locusts (Œdipoda)	Collection	}	2
Grass-hoppers (Truxalis)	,,	}	
Natesa Sastri, Pandit, Bangalore—			
Cabul coin			1
Peters, C. J., Esq., Kurnool—			
Monster chicken			1
Phipps, C. E., Esq., Perambore—			
Leaf insect (Phyllium siccifolium)			2
Pogson, N. R., Esq.—			
Mantis			1
Prentice, Mr. J.—			
Eggs	Collection.		
President, Municipal Commission, Madras—			
Monkey (Macacus radiatus)	1		
Lioness (Felio leo)	1		
Tigress (Felis tigris)	1		
Tiger cubs (Felis tigris)	3		
Leopard (Felis pardus)	1		
Black panther (Felis melas)	1		
Tiger cat (Felis bengalensis)	1		
Wolf (Canis pallipes)	1		
Sambur (Rusa aristotelis)	3		
Nilgai (Portax pictus)	1	}	23
Squirrel (Sciurus malabaricus)	1		
Scaly ant-eater (Manis pentadactyla)	1		
Kangaroo (Macropus sp.)	1		
Vulture (Pseudogyps bengalensis)	1		
Eagle (Haliætus leucogaster)	1		
Jungle fowl (Gallus sonneratii)	1		
Guinea fowl (Numidia meleagris)	1		
Lizard (Hydrosaurus stellaris)	1		
Python (Python molurus)	1		
Ratton, Dr. J. L., Egmore—			
Mantis			1
Rea, A., Esq., First Assistant, Archæological Survey, Madras—			
Sculptures from Vizianagrum	28		
Ancient stone images from Erukampett, North Arcot District	2	}	31
Portions of ancient coffins and pots contained in them from Palláveram			
Robinson, W. R., Esq., Egmore—			
Bird (Buteo vulgaris)			1
Salem, Collector of—			
Locust (Acrydium peregrinum)			1
Sartin, Dr.—			
Carcass of horse			1
Shortt, J., Retired Deputy Surgeon-General—			
Antelope (Antelope bezoartica)	1		
Porcupine (young) (Hystrix leucura)	1		
Birds	4		
Reptiles	41	}	76
Crab	1		
Insects	14		
Eggs	12		
Fruits (Auracaria excelsa)	2		
South Arcot, Assistant Collector in charge of the Treasury—			
Images			4
South Canara, Collector of—			
Gold coins			2
Steavenson, J., Esq., Marble Hall—			
Piece of Pumice stone with shell-fish attached			1
Stephens, J., Esq.—			
Black scorpion (Buthus sp.)			1
Streenivasa, Mr. B., Vepery—			
Eggs of Pond Tortoise (Emys trijuga)			2
Thomas, H. S., Esq.—			
Fish (Diodon hystrix)	1	}	2
Mollusca	1		
Thorowgood, F. N., Esq., Nungumbaukam—			
Silk moths (Antheræa mylitta)	2	}	3
Corals (Porites) from Madras Harbour			

			NO.
Tomlinson, A., Esq., Saint Thomas' Mount—			
Cocoons of Antheræa mylitta			2
Travelling Auditor, South Indian Railway—			
Leaf insect (Phyllium)			1
Trichinopoly, Collector of—			
Locusts (Acrydium)	Collection		6
Impressions of seals	3		
Copies of impressions from copper Sasanams...	2		
Tufnell, Captain R. H. C.—			
Silver coins in exchange...	2		9
Copper coins do.	7		
Wailly, Monsr. A—			
Butterflies and moths	73		117
Cocoons of Attacus cynthia and Antheræa pernyi	44		
White, Mr. W. A. F., Pursewalkum—			
Eggs of white scavenger vulture (Neophron percnopterus)			2
Whiteside, W. S., Esq.—			
Moth (Sphinx butus)			1
Wilkins, Mr. H., Vepery—			
Horn spoon found in New Zealand	1		3
Iron bracelets do.	2		
Woolridge, H. L., Esq., Villupuram, South Arcot District—			
Clear winged moth (Ægeria)			1

B.

VISITORS to the Government Central Museum from 1st April 1886 to 31st March 1887.

1886-87.	SIGNATURES MADE IN											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagaree.	Guzerattee.	Canarese.	Chinese.	Singalese.	Malayalam.	Bengalee.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	2,011	330	190	1,219	6	7	6	6	..	..	19	4
May	2,138	470	198	1,546	12	11	15	51	..	..	14	..
June	2,931	468	155	1,999	5	10	19	18	..	..	11	..
July	2,471	484	291	1,979	12	6	33	27	..	..	32	..
August	1,916	430	245	1,417	3	..	42	22	..	..	42	..
September	1,890	490	328	2,037	6	3	21	44	..	..	29	..
October	1,910	400	175	1,714	18	8	19	10	..	..	38	..
November	2,010	463	196	1,517	7	7	19	22	..	..	30	..
December	3,819	602	214	1,852	4	10	26	42	..	2	68	3
January	3,023	600	286	2,371	6	11	18	72	..	3	90	..
February	1,977	360	114	987	22	6	21	8	..	..	35	..
March	2,230	276	143	1,128	16	11	21	15	..	..	32	..
Total ..	28,326	5,373	2,535	19,766	117	90	260	337	..	5	440	7

1886-87.	Total of signatures.	Unable to sign, but tally kept.	Total of visitors.	NUMBER OF		Total of visitors.
				Men and boys.	Women and girls.	
	14	15	16	17	18	19
April	3,798	12,035	15,833	9,688	6,145	15,833
May	4,455	14,456	18,911	11,639	7,272	18,911
June	5,616	16,200	21,816	13,474	8,342	21,816
July	5,335	16,989	22,324	13,691	8,633	22,324
August	4,117	12,447	16,564	10,244	6,320	16,564
September	4,848	15,112	19,960	12,607	7,353	19,960
October	4,292	11,076	15,368	9,740	5,628	15,368
November	4,271	11,250	15,521	10,053	5,468	15,521
December	6,642	19,606	26,248	16,490	9,758	26,248
January	6,480	28,297	34,777	20,828	13,949	34,777
February	3,530	7,868	11,398	7,360	4,038	11,398
March	3,872	10,436	14,308	8,883	5,425	14,308
Total ..	57,256	175,772	233,028	144,697	88,331	233,028

C.

STATEMENT showing the number of Visitors to the Government Central Museum for the past five years.

1882-83	271,881
1883-84	242,514
1884-85	272,968
1885-86	311,462
1886-87	233,028

D-1.

LIST OF BOOKS ADDED TO THE PUBLIC LIBRARY.

1.—*By Purchase (Standard Works).*

	Volumes.
Atkinson, W. S.—New Indian Lepidopterous Insects, Part 1	1
Badger, G. P.—English-Arabic Lexicon	1
Balfour, F. M.—Comparative Embryology	2
Bentley, R.—Structural and Physiological Botany	1
Bentley, R.—Systematic Botany	1
Bible Myths and their Parallels in other Religions	1
Buckland, Franck—Life of, by G. C. Bompas	1
Burmese Cadjan Manuscript Book	1
Christy, T.—New Commercial Plants and Drugs, Parts 7 and 8	2
Church, A. H.—Food-grains of India	1
Curtis's Botanical Magazine, Volumes 38 to 42	5
Darwin, C.—Power of movement in Plants	1
Darwin, C.—Naturalists' Voyage round the World	1
Darwin, C.—Movements and Habits of Climbing Plants	1
Darwin, C.—Expression of the Emotions in Man and Animals	1
Darwin, C.—Descent of Man	1
Edwards, John—Botanical Register by John Lindley, Ph. D., F.R.S., &c., New Series	10
Ehrenberg—Beitrage Corallenthiere des rothen Meeres Von—*vm* Ehrenberg	1
Encyclopædia Britannica, Volumes 18, 19, 20 and 21	4
Esper Die Pflanzenthiere	4
Fergusson, James—Archæology in India	1
Forbes, H. O.—A. Naturalist's Wanderings in the Eastern Archipelago	1
Geikie, A.—Class Book of Geology	1
Hervey, Rev. A. B.—Guide for the Microscopical Investigation of Vegetable Substances	1
Hewitt, John—Ancient Armour and Weapons in Europe	3
Higgins, H. H.—Arrangement of Invertebrate Animals in the Museum of Liverpool	1
Higgins, Rev., H. H.—Museum Talk about Animals which have no bones (Pamphlet)	1
Higgins, Rev. H. H.—Museums of Natural History	1
Hooker, J. D. and T. Thompson—Flora Indica	1
Hornaday, W. T.—Two Years in the Jungle	1
James, William—English and German Dictionary	1
Klein, E.—Micro-organisms and Disease	1
Klunzinger, Dr. C. B.—Korallentheire des Rothen Meeres, Parts 1, 2 and 3	3
Life of Sheikh Mohammed Ali Hazin, edited from Two Persian Manuscripts by F. C. Belfour	1
Lubbock, Sir John—Ants, Bees and Wasps	1
Major, R. H.—Discoveries of Prince Henry the Navigator	1
Man, E. H.—Aboriginal Inhabitants of the Andaman Islands	1
Mirkhond.—The History of the Atabeks of Syria and Persia by W. H. Morley, Esq.	1
Mueller, B. F. V.—Descriptive Atlas of the Eucalypts of Australia, Parts 9 and 10	2
Nicholson, H. A.—Manual of Palæontology for the use of Students	2
Nordenskiold, A. E.—Voyage of the Vega round Asia and Europe	3
Numismata Orientalia, Volume 3, Part 2	1
Pallas Elenchus zoophytorum	1
Philosophical Transactions of the Royal Society of London, Volume 149, Part 2	1
Pillar of the Creed of the Sunnites by Rev. W. Cureton, M.A., &c.	1
Poole, S. L.—Catalogue of the Collection of Oriental Coins belonging to Colonel C. S. Guthrie	1
Prinsep, C.—Record of Services of the Honorable East India Company's Civil Servants.	1
Riebeck, Emil.—The Chittagong Hill Tribes, folio	1
Siebold Fauna Japonica (Crustacea) folio	1
Siebold Fauna Japonica (Aves) folio	1
Smollett, T.—History of England	5

	Volumes.
Sterndale, R. A.—Mammalia of India and Ceylon	1
Thornton, E.—Gazetteer of Sind, Afghanistan, Beluchistan and the Punjab	1
Williams, B. S.—The Orchid Grower's Manual	1
Year Book of Australia for 1885	1

D-2.

Periodicals.

American Naturalist, Nos. 1 to 12 for 1886.
Annual Register for 1885.
Asylum Press Almanac for 1887.
Illustrated London News, Vols. 89-90 for 1886-87.
Journal of the Royal Asiatic Society of Great Britain and Ireland, Parts 1 to 4 for 1886.
London Times, Weekly Edition, Nos. 482 to 535 for 1886-87.

D-3.

By Gift (Standard Works).

	Volumes.
Archæological Survey of Western India, List of the Antiquarian Remains in the Bombay Presidency by Jas. Burgess, C.I.E., LL.D., &c., No. 2.	1
Bayley, Sir E. C.—History of Gujarat, the Local Muhammadan Dynasties	1
Bühler, Dr. G.—Inscriptions from Nepal	1
Carlleyle, A. C. L.—Archæological Survey of India, Volumes 21 and 22	2
Catalogue of the Siwalik Vertebrata of the Indian Museum, Calcutta, Part II	1
Catalogue of the Pleistocene and Pre-Historic Vertebrata of the Indian Museum by R. Lydekker, B.A., &c., Pamphlet	1
Catalogue of the Siwalik Vertebrata of the Indian Mammalia, Part 1, by R. Lydekker, B A., F.G.S., &c.	1
Catalogue of the Birds in the Provincial Museum, North-West Provinces and Oudh, Lucknow, 1886	1
Catalogue of Sanskrit Manuscripts in the North-West Provinces, Part 10	1
Catalogue of Sanskrit Manuscripts in Oudh, 1885	1
Challenger—Report on the Scientific Results of the Exploring Voyage of the—Volumes 14, 15 and 16	3
Facsimile of an Inscription in St. Rita's Chapel, Mylapore, 1 roll	1
Hawkes, H. P., Colonel—Photographs of Madras Artware	1
Hunter, W. W.—Imperial Gazetteer of India	8
Jeypore Enamels by Lt.-Colonel S. S. Jacob, R.E.	1
Lepidoptera of Ceylon by F. Moore, Parts 11 and 12	2
Marshall's Butterflies of India, Burmah and Ceylon, Volumes 1 and 2	2
Memorandum on the Corrosion of the Lead Linings of Indian Tea Chests by Alexander Pedler, Esq.	1
Murray, J. A.—The Reptiles of Sindh, a Systematic Account of the—	1
Monograph on Woollen Manufactures of the Punjab for 1884-85	1
Notices of Sanskrit Manuscripts by Rajendralala Mitra, Nos. 20, 21 for 1884-85, 1885-86	2
Official Report of the Calcutta International Exhibition, 1883-84	2
Pahlavi, Gujarati and English Dictionary, Volume 4th	1
Pope, Rev. G. U.—The Sacred Kurral of Tiruvalluva Nayanar	1
Proceedings of a Conference on Silk held in the Office of the Revenue and Agricultural Department of the Government of India at Calcutta	1
Samudrika or a Treatise on the Hindu Sciences of Palmistry and Physiognomy by C. Devaraja Pillai	1
Seshagiri Sastri, M.—Notes on Aryan and Dravidian Philology, Volume 1st	1
Skeleton Map of India	1
Smithsonian Institution Report for 1883 and 1884	3
Some new Species of Ficus from New Guinea by G. King, M.B., Pamphlet	1
Species of Ficus of the Indo-Malayan and Chinese Countries, Part 1 Palaeomorphe and Urostigma by G. King, M.B., &c.	1
Statistical Atlas of India, prepared for the Colonial and Indian Exhibition, 1886, folio.	1
The Fertilization of Ficus Hispida, a problem in Vegetable Physiology by G. King, M.B., &c., Pamphlet	1
Toynbee, Captain—On the Physical Geography of the part of the Atlantic which lies between 20° N. 10° S. and extends from 10° to 40° W	1
Vijayanagar, the Ruins of the City of	1
Wallich's Tentamen Floræ Nepalensis	1
Watt, George—A Guide to the Economic and Commercial Court, Calcutta Exhibition.	1
Yule, Colonel H, and A. C. Burnell—Hobson-Jobson, or Glossary of Anglo-Indian Words	1

D-4.

Periodicals (By Gift).

Avifauna of British India and its Dependencies by James Murray, Vol. 1, Part 1.
Bulletin of the Brookville Society of Natural History, No 2.
Fort St. George Gazette, Nos. 14 to 51 for 1886; Nos. 1 to 12 for 1887.
Gazette of India, Nos. 14 to 50 for 1886; Nos. 1 to 12 for 1887.
Index to the Transactions of the Literary Society of Bombay, Volumes 1—3 and Journals of the Bombay Branch, Royal Asiatic Society, Volumes 1—17.
Indian Antiquary by J. Burgess, Volume 15 for 1886.
Journal of the Asiatic Society of Bengal, Part 1, Nos. 1 to 3 for 1886; Part 2, Nos. 1 to 4 for 1886.
Journal of the Bombay Branch of the Royal Asiatic Society.
Journal of Indian Art, Nos. 10 to 16.
Madras Journal of Education, January 1887, with supplement.
Memoirs of the Geological Survey of India (Palœontologia Indica), Vol. 3, S. 10; Vol. 4, S. 10; Vol. 1, S. 14; Vol. 4, S. 12; S. 13-1-6.
Oesterreichische Monatsschrift fur den Orient, Nos. 1 to 3 and 5 to 12 for 1886.
Proceedings of the Asiatic Society of Bengal, No. 10 for 1885; Nos. 1 to 10 for 1886.
Proceedings of the Davenport Academy of Natural Sciences, Vol. 4th.
Quarterly Journal of Veterinary Science in India, Nos. 14 to 16 for 1885-86.
Records of the Geological Survey of India, Parts 1 to 4 for 1886.
Statement of Imports and Exports, March to December 1886 and January and February 1887.
The Pandit.—A monthly publication devoted to Sanskrit Literature, Nos. 1 to 12 for 1886.

D-5.

Reports.

	Copies.
A Manual of the Administration of the Madras Presidency, Preliminary Articles ...	1
Administration Report of the Bombay Jails for 1885	1
Administration Report of the Jails of Bengal for 1885	1
Administration Report of the Meteorological Reporter to the Government of Madras for 1885-86	1
Administration Report of the Public Works Department (General, Buildings and Roads Branch), Madras Presidency, for 1883-84, 1884-85	2
Administration Report of the Public Works Department, Irrigation Branch, in Madras Presidency, for 1880-81, 1881-82, 1883-84, 1884-85	4
Annual Report on the Foreign Trade of the North-Western Provinces and Oudh for 1886	2
Annual Report with Tabular Statements of the Condition and Management of the Jails in the North-Western Provinces for 1885, by R. T. Hobart, Esq., C.S.	1
Annual Report of the Madras Court of Small Causes for 1885	1
Annual Report on the Jails of the Hyderabad Assigned Districts for the year 1885 ...	1
Annual Administration Report of the Forest Department, Madras Presidency, for 1881-82, 1882-83, 1883-84, 1884-85	4
Annual Report on the Government Cinchona Plantation in Bengal for 1885-86 ...	2
Annual Report on the Government Experimental Farm, Hyderabad, Sind, for 1886 ...	2
Annual Report of the Khandesh Experimental Farm for 1886	2
Annual Report on the Royal Botanic Garden for 1885-86	2
Annual Report on the Administration of the Land Revenue in Assam for 1885-86 ...	2
Annual Report on the Administration of the Prisons in the Province of Coorg for 1885 by J. B. Lyall, Esq.	1
Annual Report on the Lunatic Asylums in the Madras Presidency for 1885	1
Annual Report of the Director of Agriculture, Bombay Presidency, for 1885-86 ...	2
Annual Report on the Gardens of His Highness the Maharana of Oodeypore for 1885-86	1
Annual Report on the Civil Hospitals and Dispensaries in the Madras Presidency for 1885	1
Annual Report of the Madras Medical College for 1884-85 and 1885-86	2
Annual Volume of the Sea-borne Trade and Navigation of the Madras Presidency for 1885-86	2
Annual Report of the Experiments in Agriculture, British Burma, by R. Romanis, 1886	1
Annual Report on the Working of the Botanical Gardens, Poona, for 1884-85 ...	1
Australian Museum, New South Wales, Report of—for 1885	1
Civil Justice Report of Lower Burma for 1885	1
Civil Statement of the North-Western Provinces for 1885	1
Civil Account Code, Vol 1, Part I, Fourth Edition	1
Classified List and Distribution Return of Establishment for 1883 to 1886, Public Works	4
Code of Regulations for the Public Works Department for 1882	1
Coorg Inscriptions by Lewis Rice, C.I.E., 1885	1

	Copies.
Criminal Justice Report of Lower Burma for 1885	1
Criminal Statements of the North-Western Provinces for 1885	1
Crop Experiments, Bombay Presidency, for 1884-85	2
Department of Agriculture, Central Provinces, Returns of Railway-borne Traffic for March, June and September 1886	3
Erode Agricultural Exhibition, 1887, Regulations of the—	1
Excise Administration Report for Fasli 1286 to 1289, and 1882 to 1884	7
First Annual Report of the Director of the Agricultural Department, Bengal, for 1886...	2
Gooty Agricultural Exhibition, 1887, Regulations of the—	1
Indian Meteorological Memoirs by H. F. Blanford, F.R.S., Vol. 3, Part 1; Vol. 4, Part 1.	2
Indian Museum, Annual Report for 1885-86	2
Madras Land Revenue Reports for Fasli 1293 (1883-84)	1
Madras Public Works Department Forms, 1882	2
Meteorological Observations recorded at six stations in India for 1884-85 and 1886 ...	3
Note by the Chief Engineer for Irrigation on the detailed accounts of irrigation of all works for which neither Capital nor Revenue Accounts are kept for 1882-83	1
Progress Report of Forest Administration in the Hyderabad Assigned Districts for 1885-86	2
Report on the Judicial Administration (Criminal) of the Central Provinces for 1885 ...	1
Report on the Prison Administration of British Burma for 1885	1
Reports of Public Instruction in the Madras Presidency for 1884-85	1
Report on the External Trade of Bengal with Nepal, Sikkim, and Bhutan, for 1885-86.	1
Reports of the Meriah Agents (Ganjam) from 1837 to 1861	1
Report on the Abkári System of the Madras Presidency with some details of the Excise Taxation in the other Provinces of India, 1881	1
Report of the Administration of Criminal Justice in Oudh for 1885	1
Report of the Administration of the Department of Salt Revenue in the Madras Presidency of Fort St. George for the Year 1884-85	1
Report on the Administration of the Madras Presidency for 1885-86	1
Report on the Administration of the Meteorological Department of the Government of India in 1885-86	1
Report on the Administration of Civil Justice in Oudh for 1885	1
Report on the Railway-borne Traffic of the Central Provinces for 1885-86	1
Report on the Nagpur Experimental Farm in the Central Provinces for 1885-86 ...	1
Report on the Administration of the Presidency of Fort St. George for 1884-85 ...	1
Report on the Cawnpore Experimental Station for 1885 and 1885-86	4
Report on the Administration of the Registration Department in the Madras Presidency for 1879-80, 1880-81, 1882-83, 1883-84, 1884-85...	5
Report on the Progress and Condition of the Government Botanical Gardens at Saharanpur and Mussoorie for 1886...	3
Report on the Revenue Administration of Lower Burma for the Year 1885-86	3
Report on the Horticultural Gardens, Lucknow, for 1886	2
Report on Arboriculture in the Hyderabad Assigned Districts for 1885-86	2
Report on the Meteorology of India for 1884 by H. F. Blanford	1
Report on the Jails of the Punjab by R. Gray, Esq., for 1885	1
Report on the Administration of Civil Justice in the Punjab and its Dependencies for 1885	1
Report on the Jail Administration of the Province of Assam for 1885, by H. C. Williams, Esq.	1
Report on the Administration of Criminal Justice in the Punjab and its Dependencies for 1885	1
Report on Criminal and Civil Justice in the Hyderabad Assigned Districts for 1885 ...	1
Report on the Jails of the Central Provinces for 1885 by the Inspector-General of Prisons	1
Report on the Judicial Administration (Civil) of the Central Provinces for 1885 ...	1
Report on the Agriculture of Bombay for 1886	1
Report on the Government Agri-Horticultural Gardens, Lahore, for 1885-86	1
Report regarding the Travelling Show of Agricultural Implements, 1886	1
Report on the Agriculture and Commerce of the North-Western Provinces and Oudh, 1886	1
Reference to Madras Public Works Department Code, Security Bond, Paragraphs 949 and 950	1
Review Minute by His Excellency the Right Honorable the Governor	3
Returns of Agricultural Statistics of British India for 1884-85	1
Review of Forest Administration in British India for 1884-85	1
Review of the Reports on Estates under Government in the Central Provinces for 1885	1
Review of the Revenue Administration of the Province of Oudh for 1885	1
Royal Botanic Gardens, Report of, for 1885, by Dr. H. Trimen, Director	1

	Copies.
Second Report on the Abkári System of the Madras Presidency, 1881	1
Selections from the Records of the Government of India, Home Department, No. 213, Reports on Publications issued and registered in the Several Provinces of British India for 1884	1
Selections from the Records of the Government of India, Home Department, No. 223, Papers relating to Infant Marriage and Enforced Widowhood in India, 1886 ...	1
Selections from the Records of the Government of India, Home Department, No. 205, Correspondence on the Education of the Muhammadan Community in British India and their employment in the public service generally, 1886	1
Standing Order of the Public Works Department for 1883 and 1884, incomplete ...	2
The India Office List for 1886	1

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Patent Office Papers.

	Volumes.
Alphabetical Index of Patents and Applicants for Patents of Inventions for 1885 and 1886	2
Patents for Inventions, Specifications and Drawings, Vols. 13 to 86 for 1884	74
Patents for Inventions, Specifications and Drawings, Vols. 1 to 32 for 1885	32
Specifications relating to Photography, Part 3, A.D., 1877—1883	1
Specifications relating to Drains and Sewers, Sewage and Manure, Part 2, A.D., 1867—1876	1
Specifications relating to preparing and cutting Cork, Bottling Liquids, Securing and Opening Bottles, &c., Part 3, A.D., 1877—1883	1
Specifications relating to Fire Arms, Ammunition, &c., Division 1, Fire Arms and Similar Weapons, Part 3, A.D., 1877—1883	1
Specifications relating to Fire Arms, Ammunition, &c., Division 2, Cartridges, Projectiles, and Explosives, Part 3, A.D., 1877—1883	1
Specifications relating to Metals and Alloys (excepting Iron and Steel), Part 2, A.D., 1867—1876	1
Subject-matter Index of Applicants for Letters Patent for 1885 and 1886	2

E-1.

List of Books added to the Scientific Library.

By Purchase (Standard Works).

	Volumes.
Baillon, H.—Dictionaire de Botanique, Vol. 2nd	1
Bell, F. J.—The Zoological Record, Vol. 22, for 1885	1
Heude, R. P., Conchyliologie Fluviatile de la Province de Nanking et de la Chine, Centrale, Part 9	1
Iconographie der Schalentragenden Europaischen Meeresconchylien by Dr. W. Kobelt, Heft 4 and 5	2
Semper, Dr. C., Reisen in Archipel der Philippinen Zweiter Theil die Landdeckels Schnecken von Dr. W. Kobelt	1

E-2.

Periodicals.

Annals and Magazine of Natural History ...	Nos. 97 to 108 for 1886 and Nos. 1 and 2 for 1887.
Annales de la Societe Entomologique de France...	Nos. 1 to 3 for 1886.
Annales des Sciences Naturelles, Botanique ...	Vols. 3 and 4 for 1886.
Annales des Sciences Naturelles Zoologie ...	Nos. 1 and 2 for 1886.
Bulletin de la Societe Imperiale des Moscow...	Nos. 1 to 4, 1885, and 1 to 3 for 1886.
Ibis A.—Quarterly Journal of Ornithology ...	Nos. 13 to 16 for 1886, and No. 1 for 1887.
Journal de Conchyliologie	Nos. 1 to 4 for 1886.
Journal of the Linnean Society, Botany ...	Nos. 142 to 147 and 150-151 for 1886.
Do. do. do. Zoology ...	Nos. 113 to 126 for 1886.
Nature—A Weekly Illustrated Journal of Science	Vols. 33—34 for 1885-86; Nos. 888 to 905 for 1886-87.
Nouvelle's Archivesdu Museum d' Histoire Naturelle	No. 2 for 1885, and No. 1 for 1886.
Philosophical Magazine	Nos. 128 to 139 for 1886.
Proceedings of the Zoological Society ...	Parts 1 to 3 for 1886.
Quarterly Journal of the Geological Society ...	Nos. 165 to 168 for 1886.
Transactions of the Entomological Society ...	Parts 1—4 for 1886.
Transactions of the Linnean Society, Zoology.	Vol. 3, Part 4, Vol. 4, Part 1, for 1885-86.
Transactions of the Linnean Society, Botany.	Vol. 2, Part 9—11 and 12 for 1885-86.

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By Gift (Standard Works.)

	Volumes.
An introduction to the study of Meteorites, in the British Museum Natural History ...	1
Catalogue of the Printed Maps, Plans and Charts in the British Museum	2
Catalogue of the Blastoidea in the Geological Department of the British Museum by R. Etheridge and P. H. Carpenter	1
Catalogue of the Fossil Mammalia in the British Museum, Part 3	1
Catalogue of the Birds in the British Museum, Vol. 11	1
Catalogue of the Indian Coins, Greek and Scythie Kings in the British Museum ...	1
Catalogue of Books in the Galleries of the Reading Room of the British Museum ...	1
Guide to the Department of Geology and Palæontology in the British Museum Natural History	1
Lepidaptera Heterocera in the collection of the British Museum, Part 6	1

E-4.

Fish Library.

Balfour's Elasmobranch Fish	1
Bulletin of the United States Fish Commission, Vol. 1 for 1881	1
Fourth Annual Report of the Fishery Board of Scotland for 1885	1
Hore, J. P. and E. Jex, Oyster and Trawl Fisheries of England...	1
Report of the Inspectors of Irish Fisheries on the Sea and Inland Fisheries of Ireland for 1885	1

E-5.

Blue Books.

	Copies.
Convention between the Governments of Great Britain and Spain respecting the Commercial relations of the two countries, 1886	1
Copy of a statement showing the principal figures in the East India Accounts for 1883-84 and 1884-85, and estimates for 1885-86 and 1886-87, with explanations ...	1
Correspondence between the British and Indian Governments respecting the Silver Question, 1886	1
Correspondence respecting the question of Diplomatic and Consular Assistance to British Trade Abroad, Parts 1 and 2	2
Correspondence relating to Burma since the accession of King Theebaw in October 1878	1
Despatch from Her Majesty's Minister in China transmitting a Convention between Her Majesty and His Majesty the Emperor of China relating to Burma (China No. 5, 1886) sheet	1
East India (Loans raised in India, 1886, sheet)	1
East India (Transfer of Government to Simla)	1
Estimate of Revenue and Expenditure of the Government of India for the Year 1885-86	1
Extracts of the Proceedings of the Council of the Governor-General of India assembled for the purpose of making Laws and Regulations regarding the Act, No. 2 of 1886, for imposing a Tax on Income derived from other sources than Agriculture	1
Further correspondence respecting the formation of an International Copyright Union, 1886, Nos. 2 and 3	2
Further correspondence respecting Central Asia, No. 4, for 1885	1
Further correspondence relating to Burma, No. 3, for 1886	1
Home accounts of the Government of India, 1886	1
Index to the Report from the Select Committee on Forestry for 1885	1
Report on Sanitary measures in India in 1884-85 with Miscellaneous information up to June 1886, Vol. 18	1
Report from the Select Committee on Forestry with the Proceedings of the Committee, and Minutes of Evidence, 1886	1
Return East India Silver Question for 1885	1
Return East India Reduction of Expenditure for 1885	1
Return East India Army System Army Transport for 1885	1
Return East India Financial Statement for 1886-87	1
Statement exhibiting the Moral and Material Progress and Condition of India for 1882-83, 1883-84 and 1884-85	3
Statistical Abstract relating to British India from 1875-76 to 1884-85	1
Supplementary Article to the Treaty between Great Britain and Siam of 1883 relative to Extradition, 1886, sheet	1
Third Report of the Royal Commission appointed to inquire into the Depression of Trade and Industry for 1886	1

E-6.

Trübner's Oriental Series.

	Volumes.
Bigandet, Rev. P.—The Life or Legend of Gaudama the Buddha of the Burmese ..	2
Gray, James—Ancient Proverbs and Maxims from Burmese sources	1
Wherry, Rev. E. M.—A Comprehensive Commentary on the Quran, Vol. 4th	1

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Record Publications from the Master of the Rolls.

Bracton Delegibus Angleae, Vol. 6th	1
Calendar of State papers (Domestic) 1656-1657, 1657-1658, and 1658-59	3
Calendar of State papers (Colonial) East Indies, 1625—1629	1
Calendar of State papers (Spanish) 1531—1533	2
Calendar of State papers (Venetian) 1557-1558	1
Calendar of State papers (Ireland) 1588-1592	1
Calendar of Treasury papers, 1714—1719	1
Cartularium Monasterü de Rameseia, Vol. 1st	1
Chartularies, &c., St. Mary's Abbey, Dublin	1
Chronicles, Stephen, Henry II, Richard I	2
Chronicles, Edward I and Edward II, Vol. 2nd	1
Croniques, &c., Par Waurin, 1431 to 1447	1
Eadmeri Historia Novorum in Anglia, &c.	1
Letters and Papers, Foreign and Domestic, Henry VIII, Vols. 7 and 8, 1534 and 1535	2
Materials for the History of Archbishop Thomas á Becket, Vol. 6	1
Math Paris Chromica Majora, Vol. 7th, Index	1
Register of Sarisberiense Osmund, Vol. 1	1
Registrum Epistolarum, J. Peckham, Archiepiscope Cantuarienses, Vol. 2nd	2
Syllabus of Rymeis, Fœdera, Vol. 3rd, Appendix	1
Symeon of Durham, Vol. 2	1
Thomas Saga Erkibyskups, Vol. 2nd	1
Year Books, Edward III, Years 11-12 and 12-13	2

MADRAS,
9th July 1887.

(Signed) EDGAR THURSTON,
Superintendent, Government Central Museum.

LIST OF EXHIBITS FROM THE INDO-COLONIAL EXHIBITION RETURNED FOR DEPOSIT IN THE MUSEUM.

Musical Instruments.

Flute made of bamboo.
Whistle do.
An oboe-like instrument made of blackwood.
Do. do. do.
Do. do. do.
Conch shell.
S-shaped brass trumpet.
Drum.
Drum, barrel-shaped.
A small drum chiefly used by beggars.
A sort of guitar, made of jackwood.
Do. do. teakwood.
A guitar made of jackwood.
Do.
A guitar, with a drum-like body.
A violin.

Jewellery.

Silver armlets.
Pair silver wristlets.
Do. silver toe ring.
2 Do. do.
2 Do. do.
Pair gold ear ornament.
Do. do. do.
Do. do. do.
One do. do.
Pair do. do.
Do. do. do.
One do. do.
Pair gold ear studs.
Do. do. drops.
Do. do. studs.
Do. do. drops.
Do. do. do.
Gold nose ornament.
Do. do. ring.
Do. do. do.
Pair wristlets.
Do.
Silver waistcord.
Do. waistchain.
Do. fig-leaf.
Pair silver anklets.
Do.
Do.
One do.
Pair do.
One do.
Do. do.
Pair do.
Silver toe ring.
Do. do.
Do. do.
Silver finger ring.
Do.
Do.
Silver wristlet.

Gold nose ornament.
Do. do. do.
Do. do. do.
Gold necklet.
Silver necklet.
Silver neckchain.
Gold and glass bead necklet.
Horsehair do.
Horsehair necklet.
Silver necklet.
Do.
Silver chain.
Pair silver armlets.
1 silver do.
Silver armlet with pendant.
Silver armlet.
Do.
Silver wristlet.
Do.
Do. pair.
Silver wristlet.
Do.
Do.
Brass wristlet.
Seven iron wristlets.
Pair silver pendants.
Do. gilt ear studs.
Four earrings.
Wristlet.
Silver wristlet.
Silver waist-belt.
Pair silver wristlets.
Do. do.
Hair pendant.
Silver finger ring.
Do do.
Pair silver toe rings.
Do. do.
Silver necklet.
Do. head ornament.
Do. do.
Do. armlet.
Do. wristlet.
Do. finger ring.
Do. do.
Do. waistchain.
Do. anklet.
Do. do.
Do. fig-leaf.
Do. head ornament.
Hair ornament.
Necklet.
Do.
Do.
Do.
Do.
Collection of peasant jewellery.
Do. do.
Copper armlet.
Collection of peasant jewellery.
Set do. do.
Do. do. do.
Do. do. do.
Silver armlet.
Gold nose ornament.
Two gold ear ornaments.
Do. do.
Do. do.
Pair silver wristlet.
Do.

Silver armlet.
Do.
Do.
Silver necklet.
Do. wristlet.
Gold ring.
Gold annular studs.
Silver and gilt armlet.
Do. wristlet.
Silver wristlet.
Do.
Gold ear ornament.
Do. pair.
Silver ear ornament.
Do. necklace.
Do. do.
Two silver and bead necklaces.
Silver armlet.

Silver toe ring.
Pair do.
One wristlet.
Pair do.
Do. do.
Silver armlet.
Gold ring.
Gold and glass bead necklace.
Gold forehead ornament.
Silver wristlet.
Do.
Do.
Do.
Silver chatelaine.
Do. finger ring.
Pair of earrings.
Pair of brass armlets.
Two brass and two copper wristlets.
Copper wristlet.
Brass wristchain.
Silver necklet.
Do. finger ring.
Do. gilt breast-plate.
Do. nose ornament.
Do. waist-chain.
Do. coin case.
Two silver toe rings.
Silver fig-leaf.
Pair gold earrings.
Gold earring.
Pair do.
One do.
One nose ring.
Do.
Sixteen silver charms.
Hair ornament.
Pair head ornament.
Ear drops.
Nose ornament.
Necklet.
Do.
Armlet.
Pair wristlets.
Waistbelt.
Collection of peasant jewellery.
Pair copper anklets.
Do. head ornaments.
Gold ear ornament.
Do. head do.
Do. head ornament.

Silver necklet.
Do. pendant.
Two gold beads.
Do. do.
Silver armlet.
Do. with pendant.
Silver wristlet.
Do.
Do.
Do.
Silver wristlets, pair.
Do.
Gold fig-leaf.
Pair silver anklets.
Do. do.
One do.
Do. do.
Do. do.
Brass oil-vessel.
Metal chembu.
Brass do.
Do.
Do.
Do.
Do.
Do.
Copper chembu.
Do.
Do.
Bell-metal lotah.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Pewter lotah.
Bell-metal aftaba.
Circular brass tray.
Octagonal do.
Brass tray.
Do.
Do.
Do.
Do.
Do.
Copper tray.
Brass do.
Copper do.
Brass tray.
Do.
Brass plate.
Do.
Brass tray.
Do.
Brass bowl.
Do.
Bell-metal cup.
Do.
Bell-metal water vessel.
Do. tobacco-holder.
Do. chunam-holder.
Brass bowl.
Set of peasant jewellery.

Set of peasant jewellery.
Do.
Do.
Marriage necklet of 48 pendants (charms) with 52 rubies and 57 beads.
Pair gold ear studs.
Pair gold wristlets.

Manufactures in metal.

Brass lamp.
Lamp.
Brass chembu.
Brass lamp.
Copper water vessel.
Do.
Brass cymbals.
Brass lamp.
Bell-metal lamp.
Brass lamp.
Do.
Chembu.
Bell-metal chembu.
Brass do.
Do.
Bell-metal chembu.
Do.
Do.
Brass chembu.
Metal lotah.
Do.
Do.
Bell-metal ladle.
Do.
Bell-metal oil measure.
Brass spittoon.
Do.
Brass lamp.
Do.
Do.
Brass drinking vessel.
Brass water vessel.
Brass plate and candle-sticks.
Copper begging pot.
Do.
Copper tray.
Bell-metal stand.
Brass bell.
Cup for sandalwood paste.
Cup.
Cylindrical vessel.
Vessel for holy water.
Do.
Do.
Chased lotah.
Vessel for holy water.
Brass chembu.
Feet of Krishna.
House lamp.
Household lamp.
Brass and zinc salver.
Copper salver.
Brass lotah.
Brass tray.
Do.
Brass water vessel.
Do.

Lacquered Wares.

Lacquered box.
Lacquered box and playing cards.

Large lacquered fan in 4 colors.
Small fan, lacquered.

Lapidaries' Work.

Rock crystal Lingam and Yoni.

Textiles.

Woman's cloth
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Turban.
Woman's cloth
Do.
Do.
Do.
Do.
Do.
Do.
Woman's jacke
Do.
Woollen rug.
Small carpet.
Piece of silk.
Do.
Woman's jacket, silk.
Do.
Do.
Woman's cloth, silk.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Woman's cloth.
Do.
Do.
Do.
Woman's jacket-cloth.
Do.
Do.
Do.
Do.
Piece of satin.
Do.
Do.
Piece of silk.
Hand-printed palampore.
Do.
Do.
Handkerchief.
Hand-printed palampore.
Do. cloth.
Do.
Woman's cloth.
Do.
Do.

Woman's cloth.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Woman's jacket-cloth.
Turban.
Men's handkerchief.
Petticoat cloth.
Piece of unbleached Arni muslin.
Woman's cloth.
Do.
Do.
Do.
Do.
Woman's jacket-cloth.
Do.
Do.
Woman's jacket, silk.
Do.
Do.
Woman's cloth, silk.
Do.
Do.
Do.
Do.
Do.
Do.
Do.
Woman's cloth.
Do.
Do.
Do.
Do.
Woman's jacket-cloth.
Do.
Do.
Do.
Do.
Eighteen pattern lengths of satin.
Woman's jacket-cloth.
Piece of silk.
Do.
Hand-printed cloth.
Do.
Hand-printed palampore.
Do. do.
Do. do.
Do. do.
Do. do.
Do. do.
Do. do.
Do. do.
Do. do.
Cotton kerchief.
Do.

Waistcloth.
Do.
Pair kerchiefs.
Turban cloth.
Hand-printed palampore.
Do. do.
Do. do.
Hand-printed woman's cloth.
Do. kerchief.
Do. woman's cloth.
Do. do.
Hand-printed palampore.
Do. do.
Do. do.
Do. do.
Do. do.
Do. do.
Do. do.
Do. do.
Do. do.
Do. do.
Hand-printed palampore.
Do. do.
Do. do.
Hand-printed cloth.
Do.
Do.
Do.
Hand-printed palampore.
Do. do.
Woman's cloth.
Woollen rug.
Hand-printed palampore.
Do. do
Hand-printed canopy cloth, 12½′ × 11″.
Do. do. 12′ × 11″.
Piece of cloth showing various methods of hand printing.
Hand-printed canopy cloth, 13′ × 11″.
Hand-printed palampore.
Do. of Persian carpet pattern, 18′ × 18′

Poshtins, Belts, Saddles, &c.

Embroidered saddle.

MADRAS,
9th July 1887.

(Signed) EDGAR THURSTON,
Superintendent, Government Central Museum.

ORDER—dated 25th August 1887, No. 840, Revenue.

Miscellaneous.

The report on the working of the Government Central Museum during the year 1886-87 shows that considerable progress was made, especially in the Natural History section. His Excellency the Governor in Council notices with much satisfaction the interest which Dr. Thurston takes in his work, and he regards the tours which that officer has made as most useful to the interests both of the museum and of the Presidency to which the museum is to serve as an illustrative index.

2. The Superintendent attributes the decrease in the greatest number of visitors on any one day to the melancholy disaster that occurred at the Madras Park Fair; the great decrease which occurred in the total number of visitors is not explained. It appears from a comparison of the statement given on page 14 of the report with a similar statement for the previous year that the falling off in numbers was distributed fairly evenly over the year.

3. The Government consider that it would be convenient if a statement of the cost of working the museum was given in the annual report, and they direct that this be done in future.

4. The attention of the Public Works Department will be invited to paragraph 2 of the report. The recommendation of the Superintendent that one of the godowns should be converted into a water-pandal will be considered on the receipt of more definite proposals, which should be accompanied by an estimate of the cost.

5. In conclusion, His Excellency the Governor in Council desires to tender his acknowledgment to the numerous contributors to the museum, as well as to Captain Tufnell and others who rendered assistance to the Superintendent.

(True Extract.)

(Signed) J. F. PRICE,
Ag. Secretary to Government.

To the Superintendent, Government Central Museum.
„ the Public Works Department.
„ Surgeon-General G. Bidie, M.B., C.I.E.
„ the Editors' Table.

Exd W. H. French.

150 Copies.

Govt. of {1887} Madras.

REVENUE.

Issued

Recd. *Encl.*

G.O., 25th August 1887, No. 840.

AUGUST.

Government Central Museum.

Review of report on the — for 1886-87.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—The following papers:—

From EDGAR THURSTON, Esq., Superintendent, Government Central Museum, to the Secretary to Government, Revenue Department, dated Madras, 4th July 1888, No. 395.

I have the honor to submit to the Right Honorable the Governor in Council my report on the working of the Government Central Museum during 1887-88, and, as it contains a large number of technical terms, I shall be glad to be furnished with a proof of the same before striking off. I also request that I may be supplied with 100 copies for distribution to other Museums, &c.

ADMINISTRATION REPORT OF THE GOVERNMENT CENTRAL MUSEUM FOR THE YEAR 1887-88.

VISITORS TO THE MUSEUM.—The usual statistical returns of the number of visitors to the Museum during the year are given in appendix B. The total number was 264,182 against 233,028 in 1886-87, being an increase of 31,154. The greatest number of visitors on any single day was 19,161 on December the 27th (*Thuwathasee*).

The number of Gosha visitors on the day set apart for them every month was 1,811 against 749 in 1886-87, being an increase of 1,062.

The following statement of visitors to the Museum during the last five years shows the fluctuations from year to year:—

1883-84	242,514
1884-85	272,968
1885-86	311,462
1886-87	233,028
1887-88	264,182

2. BUILDINGS.—The roof of the Lecture-hall and that of the new gallery still leak, and the attempts made to prevent the oozing of moisture from the walls and pillars of the main hall did not prove successful. These defects were duly brought before the notice of the Department of Public Works.

The provision of a *porte-cochère* in front of the Superintendent's house was sanctioned, when funds are available, in Public Works G.O., No. 95 W., of 11th January 1888, at a cost of Rs. 890, and an estimate for Rs. 840 was furnished by the Public Works Department for improvements to the quarters of the Head Taxidermist.

Definite proposals with an estimate amounting to Rs. 240 were placed before Government for the conversion of a disused godown into a water-pandal in my letter No. 96 of 20th February 1888.

The Public Works Department made a thorough inspection of the buildings during the year with a view to general repairs.

3. ESTABLISHMENT.—The only change in the establishment was caused by the retirement of the Librarian after a total service of 32 years. His place was filled by the Assistant Librarian, who was specially exempted from the operation of the Uncovenanted Civil Service Examination rules to qualify him for the post. A suitable man was recruited from the contingent establishment to fill the vacant post of Assistant Librarian.

4 HERBARIUM.—The Herbarium-keeper mounted 150 plants and 75 grasses, and arranged the species of the natural order Euphorbiaceæ, so far as they are contained in part XIV of the "Flora of British India." A collection of pulses and grains was named and labelled, and MSS. catalogues of oil-seeds and drugs were prepared.

Mr. M. A. Lawson, Government Botanist, went systematically through and rearranged the specimens contained in the herbarium, illustrative of the following natural orders:—

Ranunculaceæ.	Portulaceæ.	Burseraceæ.	Halorageæ.
Dilleniaceæ.	Tamariscineæ.	Meliaceæ.	Rhizophoreæ.
Magnoliaceæ.	Elatineæ	Olacineæ.	Combretaceæ.
Anonaceæ.	Hypericineæ.	Ilicineæ.	Myrtaceæ.
Menispermaceæ.	Guttiferæ.	Celastrineæ.	Melastomaceæ.
Berberideæ.	Ternstrœmiaceæ.	Rhamneæ.	Lythraceæ.
Nymphæaceæ.	Dipterocarpeæ.	Ampelideæ.	Onagraceæ.
Papaveraceæ.	Malvaceæ.	Sapindaceæ.	Samydaceæ.
Fumariaceæ.	Sterculiaceæ.	Sabiaceæ.	Passifloreæ.
Cruciferæ.	Tiliaceæ.	Anacardiaceæ.	Cucurbitaceæ.
Capparideæ.	Lineæ.	Moringeæ.	Begoniaceæ.
Resedaceæ.	Malpighiaceæ.	Connaraceæ.	Datiscaceæ.
Violaceæ.	Zygophylleæ.	Leguminosæ.	Ficoideæ.
Bixineæ.	Geraniaceæ.	Rosaceæ.	Umbelliferæ.
Pittosporeæ.	Rutaceæ.	Saxifragaceæ.	Araliaceæ.
Polygaleæ.	Simarubeæ.	Crassulaceæ.	Cornaceæ.
Caryophylleæ.	Ochnaceæ.	Droseraceæ.	

5. ARTIST.—The Artist was, in addition to some minor work, employed in making drawings illustrative of the catalogue of batrachians, and paintings of birds, which have been framed and placed in the bird gallery. The drawings of batrachians were successfully lithographed by Mr. A. Barren.

6. TOURS.—During the year two tours were made, viz., to Tuticorin and the Nílgiris. At the former place great assistance was rendered by Captain Phipps, Port officer, in placing boats and divers at my disposal. Large collections, illustrative of the marine fauna, were made, mainly through the medium of native divers, who displayed no little skill, and some of the specimens, *e.g.*, the entire collection of sponges and echinoderms, have been sent to the British Museum, Natural History, for investigation and report. The results of this tour will be published after I have made a further tour to the Gulf of Manaar in the ensuing year.

During my tour on the Nílgiris a large area of both the plateau and slopes was explored, and large collections of birds, reptiles, butterflies, &c., were made, but as I only returned to Madras a few days before the termination of the official year, I reserve a list for my next annual report.

The Museum is greatly indebted to Mr. G. F. Hampson not only for naming many of the butterflies collected, but also for presenting a number of specimens from his admirable collection.

On both tours I was accompanied by the Head and 3rd Taxidermists, who throughout the year did their work with great zeal and ability. The latter unfortunately contracted a severe attack of fever on the Nílgiris.

7. ART GALLERY.—Considerable progress was made during the year with the conversion of the old shell gallery into an art gallery. New cases were arranged around the walls, containing samples of silk women's cloths manufactured in various

parts of the Madras Presidency, and in the body of the gallery were exhibited in new cases specimens of Tanjore mixed metalware, the beautiful-chiselled elephant goads from Tanjore, Madras and Kashmir brassware, Bidri ware, Trichinopoly zinc and brass ware, Multán pottery, Vizagapatam ware in ivory and sandalwood, and some of the native jewelry which was returned from the Indo-Colonial Exhibition.

The completed portion of the gallery was screened off from the uncompleted portion by palempores manufactured in the Presidency.

8. PUBLICATIONS.—A preliminary report on the marine fauna of Rámesvaram and the neighbouring islands, and an illustrated catalogue of the coins of Mysore contained in the Museum collection were issued, and I was engaged upon a history of the coinage of the East India Company from the 1st issue of coins, the portcullis money of Queen Elizabeth, in 1601 to the passing of Act No. XIII of 1862. The whole of the records of the Madras Mint were gone through, from which much interesting information with respect to the coinage of the Company was extracted, and arrangements were made with the British Museum for the making of casts of the coins of the Company in the collection of that institution for reference.

An illustrated catalogue of the batrachians (frogs, toads and cœcilians) of Southern India was in the press at the end of the year.

9. NUMISMATICS.—Among the numerous additions to the collection of coins during the year, I may mention (1) silver tungas of the Mogul Emperors Baber and Humayun; (2) a gold coin of Taj-ad-din Yildiz, lieutenant of the Delhi Sultan Muhammad ibn Sam; (3) coins of the Greek and Scythic kings of Bactria and India, Lysias, Rajnabala, Spalirises and Azes, Abdagases, Orthagnes, Zeionises, Kadphises I, and Kadaphes, the bronse coin of the last king having on the obverse a head of the king diademed, and closely resembling the head of Augustus on some of the coins of that Emperor; (4) several new types of Mysore coins; (5) a zodiac Mohur, Capricornus, of Jehangir.

A collection of copper coins, which were found at Kilakarai on the Madura coast, was presented to the Museum. Mr. J. P. James, then Port officer of Pámban, reported in a letter to Government (No. 226, dated 9th August 1887) that, while walking along the beach north-east of Kilakarai to visit the Naajimundel beacons, he noticed the beach strewn with quantities of pottery of various kinds. On making inquiries he was told that the legend runs that, in the time of the Pandyans, there was a large city extending from Kilakarai to Muthúpettah, which is about nine miles, and that it also extended to Sheramoodelly Theevo, an island about five miles south; that a hurricane submerged the whole country, and the islands were then formed from part of the mainland. On inquiry whether any coins were ever found, Mr. James was told that they were sometimes, and eventually a parcel of coins was sent to him.

The collections contain in addition to many common coins, several which are of special interest. The former include Buddhist, Vijayanagar, Chola, Pandyan, Setupati, and Indo-French coins, and a coin of the Ceylonese Monarch Sahasa Malla, bearing the legend *Sri-mat Sahasa Malla.*

The latter include (1) a copper coin silvered of Ahsan Shah, commandant in Malabar, who threw off his allegiance to the Delhi Sultan Muhammad ibn Taghlak, and issued coins in his own name; (2) the copper lion coin of the Ceylonese Monarch Parákrama Báhu (1153—1186 A.D.), bearing on the obverse the standing figure of the Raja with a lotus in the left hand and in the right hand a weapon, and the figure of a seated lion with its mouth open showing the teeth in the upper jaw, and on the reverse the seated figure of the Raja and the legend *Sri Parákrama Báhu;* (3) a copper coin of Parákrama Báhu, so far as I am aware hitherto unpublished, similar in every respect to the *Lankeswara* gold coin of that monarch, and bearing the following devices and legend: *Obverse.*—Standing figure of the Raja wearing a conical cap and dhoti, with a lotus flower in the left hand and a weapon in the right hand, standing on the stalk of a lotus which ends in a flower, between which and the left hand are five dots. *Reverse.*—Seated figure of the Raja with a lotus in the left hand and left leg resting on a grating. Legend *Sri Lankeswara;* (4) two Roman copper coins both very much worn and having the legends on the obverses entirely illegible. One bears on the obverse the head of some Emperor, and on the reverse a cross within a circle, while the

other bears on the obverse the head of an Emperor (Decentius or Julianus II.?) and on the reverse the legend VOT XV MULT. XX. in four lines within a laurel wreath, fastened above with a circular ornament.

In addition to numerous coins of the Moghul Emperors of Delhi, the Museum is indebted to the Asiatic Society of Bengal for two coins—impure gold—of Raja Govinda Chandra Deva of the (so-called) Rahtor house of Kanauj, who reigned from 1120—1144 A.D.

10. NATURAL HISTORY—*Sponges.*—The sponges collected at Rámesvaram Island in 1886 and at Tuticorin in 1887 were sent home to be worked out at the British Museum, Natural History by Mr. Arthur Dendy, who has published a report on them in the Annals and Magazine of Natural History for September 1887. The type specimens have been preserved in that institution, and duplicates of the following species are exhibited in the Madras Museum :—

Acanthella carteri (Dendy MSS.)	Tuticorin.
Aplysina fusca (Carter)	Do.
Auletta aurantiaca (Dendy MSS.)	Do.
Aulospongus tubulatus (Bowerbank sp.)	Do.
Axinella donnani (Bowerbank sp.)	Do.
Do. (do.)	Rámesvaram.
Ceraochalina multiformis (Lendenfeld), var. manaarensis (Dendy MSS.)	Tuticorin.
Clathria corallitincta (Dendy MSS.)	Do.
Clathria indica (Dendy MSS.)	Do.
Gelliodes carnosa (Dendy MSS.)	Do.
Hircinia clathrata (Carter)	Rámesvaram.
Iotrochota baculifera (Ridley), var. flabellata (Dendy)	Do.
Megalofastas nigra (Dendy MSS.)	Tuticorin.
Pachychalina spinilamella (Dendy MSS.)	Do.
Phakellia ridleyi (Dendy)	Rámesvaram.
Raspailia fruticosa (Dendy)	Do.
Do. thurstoni (Dendy)	Do.
Suberites inconstans (Dendy), var. digitata, var. globosa	Do.

Crustacea.—Of the large collection of crustacea made at Tuticorin, many still remain to be worked out. The following species, collected at different parts of the coast, were placed in the Museum :—

Albunea symnista (Fabricius)	Madras.
Aniculus typicus (Dana)	Tuticorin.
Atergatis integerrimus (Lamarck)	Do.
Do. lævigatus (M. Edwards)	Do.
Calappa tuberculata (Fabricius)	Pámban.
Cenobita rugosa (M. Edwards)	Madras.
Charybdis crucifera (Fabricius)	Do.
Do. granulatus (de Haan)	Pámban.
Diogenes custos (Fabricius)	Madras.
Do. custos (non-Fabricius), Herbst	Do.
Do. herbstii n. sp.	Do.
Do. miles (Fabricius)	Do.
Doclea hybrida (M. Edwards)	Do.
Galathea elegans (White)	Tuticorin.
Gonodactylus chiragra (Latreille)	Pámban.
Do. trispinosus (White)	Tuticorin.
Hippa asiatica (M. Edwards)	Madras.
Lysiosquilla maculata (Fabricius)	Tuticorin.
Matuta lunaris (Herbst)	Madras.
Do. victrix (Fabricius)	Do.
Do. victrix, var. circulifera (Henderson)	Pámban.
Neptunus sanguinolentus (Herbst)	Madras.
Ocypoda ceratophthalma (Pallas)	Tuticorin.
Do. macrocera (M. Edwards)	Do.
Pagurus deformis (M. Edwards)	Do.
Do. punctulatus (Ollivier)	Do.
Philyra scabriuscula (M. Edwards)	Madras.
Porcellanella triloba (White)	Tuticorin.
Pseudodromia integrifrons n. sp. (Henderson)	Do.
Pseudosquilla ciliata (Fabricius)	Do.

Spiropagurus spiriger (de Haan)	Madras.
Squilla nepa (Latreille)	Cochin
Do. scorpio	Pámban.
Do. sp. Alima larva	Gopálpur.

Mollusca.—The following list shows the species of mollusca, arranged in alphabetical sequence, which were added to the collection :—

Achatina tornensis	Western Ghâts.
Ancillaria ampla	Madras.
Do. (Sparella) cinnamonea	Tuticorin.
Do. do.	Cape Comorin.
Apicalia holdsworthi	Tuticorin.
Arca (Barbatia) lima	Do.
Do. (Scapharca) sp.	Do.
Avicula vexillum	Do.
Do. radiata	Do.
Brechites sp	Do.
Buccinum erythrostoma	Madras.
Bulimus pullus	Cochin.
Bulla fasciata	Madras.
Cantharus melanostoma	Tuticorin.
Cardium asiaticum	Do.
Conus hebræus	Do.
Corbicula occidens	Cochin.
Corbula fortisulcata	Tuticorin.
Crassatella radiata	Do.
Cryptodon vesicula	Do.
Cypræa arabica (young)	Tuticorin.
Do. moneta	Madras.
Do. vitellus	Tuticorin.
Cytherea vestita	Cochin.
Delphinula distorta	Tuticorin.
Dentalium quadrapicale	Cochin.
Dolabella rumphii	Pámban.
Dosinia sp. (young)	Cochin.
Ficula lævigata	Madras.
Fissurella singaporensis	Tuticorin.
Helix madraspatana	Madras.
Leda mauritiana	Tuticorin.
Limnæa sp.	Cochin.
Lithodomus stramineus	Tuticorin.
Do.	Do.
Lithodomus teres	Do.
Do.	Do.
Littorina scabra (young)	Do.
Lobiger sp.	Do.
Marginella angustata	Do.
Melania spinulosa	Pennár River.
Nassa suturalis	Tuticorin.
Natica pulicaris	Do.
Do. sp. (young)	Do.
Paphia trigona	Do.
Pecten flabelloides	Madras.
Pectunculus taylori	Tuticorin.
Phasianella lineolata	Do.
Purpura rudolphi	Madras.
Pyrula spirillus	Tuticorin.
Ranella foliata	Do.
Do. granifera	Madras.
Do. margaritula...	Do.
Do. spinosa	Do.
Do. tuberculata	Vizagapatam.
Ringicula doliaris ?	Tuticorin.
Do. sp.	Do.
Rotella elegans	Bellary.
Sanguinolaria sanguinolenta	Ennore.
Solen corneus	Tuticorin.
Tapes malabarica	Do.

Tapes undulata	Tuticorin.
Theora fragilis	Do.
Triforis cingulatus	Do.
Triton do.	Do.
Do. retusus	Do.
Trochus (Gibbula) variabilis	Do.
Do. (Polydonta) radiatus	Do.
Turbinella pyrum	Madras.
Do. rapa	Tuticorin.
Turbo articulatus	Pámban.
Voluta interrupta	Tuticorin.

Fishes.—Arrangements have been made for the preparation for the British Museum of Natural History of a collection of the fishes of the Presidency.

The following specimens were added to the fish gallery :—

Zygæna blochii	Madras.
Rhinobatus granulatus	Tuticorin.
Scyllium marmoratum	Madras.
Serranus sp.	Tuticorin.
Do. tumilabris	Do.
Do. bœnack	Madras.
Lutianus rivulatus	Tuticorin.
Therapon sp.	Madras.
Pristipoma furcatum	Do.
Apogon auritus	Tuticorin.
Chætodon vagabundus	Pámban.
Chrysophrys sara	Madras.
Holocentrum rubrum	Tuticorin.
Do. sp.	Do.
Pempheris mangula	Do.
Caranx rottleri	Madras.
Chorinemus lysan	Do.
Stromateus niger	Do.
Gobius bynoensis	Tuticorin.
Gobiodon citrinus	Do.
Salarias sp.	Do.
Tetradrachmum aruanum	Do.
Glyphidodon antyerius	Do.
Silurus wallagoo	Madras.
Exocœtus pœcilopterus	Do.
Notopterus kapirat	Do.
Muræna tessellata	Do.
Do. undulata	Do.

Specimens of Branchiostoma sp. (the Lancelet) dredged off the Seven Pagodas were presented to the Museum by Dr. Giles, Surgeon-Naturalist to the Investigator, and specimens of the same species were obtained by myself off the Tuticorin pearl banks.

Batrachians.—A collection in spirit of the Batrachians of Southern India, illustrative of the catalogue which was in the press, was placed in the "Fish gallery."

Birds and Eggs.—During my tour on the Nílgiris a large collection of birds was made with the assistance of native shikarees, and will be reported on at a future date. The following birds, obtained for the most part during a short visit to the Shevaroys at Christmas, or locally, were stuffed during the year :—

No.*	Latin name.	English name.	No.*	Latin name.	English name.
8	Falco peregrinus	Peregrine falcon.	76	Athene brama	Spotted owlet.
9	Do. peregrinator	Shahin do.	78	Do. Malabarica	Malabar do..
17	Tinnunculus alaudarius.	Kestril.	112	Caprimulgus Asiaticus	Common Indian bee-eater.
23	Micronisus badius	Shikra.			
54	Circus æruginosus	Marsh harrier.	122	Nyctiornis athertoni	Blue-necked bee-eater.
65	Syrnium sinense	Mottled wood owl.	123	Coracias Indica	Indian roller.
69	Urrua bengalensis	Rock horned owl.	129	Halcyon fuscus	White-breasted king-fisher.
72	Ketupa ceylonensis	Brown fish owl.			
74	Ephialtes pennatus	Indian scops owl.	136	Ceryle rudis	Pied king fisher.

* The numbers refer to the numbers in Jerdon's Birds of India.

No.	Latin name.	English name.	No.	Latin name.	English name.
149	Palæornis rosa ..	Rose-ringed parrakeet.	674	Dendrocitta rufa ..	Common Indian magpie
180	Brachypteru aurantius.	Golden-backed woodpecker.	684	Acridotheres tristis ..	Common myna.
			699	Munia undulata ..	Spotted munia.
194	Megalaima viridis ..	Small green barbet.	795	Turtur suratensis ..	Spotted dove.
197	Xantholæma indica ..	Crimson-breasted barbet.	803	Pavo cristatus	Peacock.
214	Eudynamys orientalis ..	Indian koel.	814	Galloperdix spadiceus ..	Red-spur fowl.
255	Upupa nigripennis ..	Indian hoopœ.	832	Turnix taigoor ..	Black-breasted bustard quail.
272	Pericrocotus flammeus..	Orange minivet.			
278	Dicrurus macrocercus ..	Common drongo shrike .	845	Charadrius longipes ..	Golden plover.
282	Chaptia ænea	Bronzed drongo.	867	Scolopax rusticola ..	Woodcock.
287	Artamus fuscus ..	Ashy swallow shrike.	871	Gallinago scolopacinus .	Common snipe.
288	Tchitrea paradisi ..	Paradise flycatcher .	873	Rhynchæa Bengalensis.	Painted do.
302	Eumyias albicaudata ..	Nilgiri blue flycatcher .	880	Philomachus pugnax ..	Ruff.
353	Orocetes cinclorhynchus.	Blue-headed chat thrush.	891	Actitis glareola ..	Spotted sand piper.
360	Merula simillima .	Nilgiri blackbird ..	894	Totanus glottis	Green shank .
404	Pomatorhinus horsfieldi.	Southern scimitar babbler.	895	Do. stagnatilis ..	Little shank.
			902	Porphyrio poliocephalus.	Purple coot.
434	Malacocircus griseus ..	White-headed babbler..	951	Nettappus Coromandelianus.	White-bodied goose teal.
467	Iora zeylonica	Black-headed green bulbul.	964	Querquedula crecca ..	Common teal.
471	Oriolus indicus ..	Black-naped Indian oriole.	965	Querquedula circia ..	Blue-winged teal.
475	Copsychus saularis ..	Magpie robbin.	975	Podiceps Philippensis ..	Little grebe.

Eggs of the following birds were added to the collection:—

No.	Latin name.	English name.	No.	Latin name.	English name.
11	Falco jugger	Laggar falcon.	840	Cursorius Coromandelicus.	Indian courier plover.
23	Micronisus badius ..	Shikra.			
70	Urrua coromanda ..	Dusky-horned owl.	929	Buphus Coromandus ..	Little egret.
89	Cotyle sinensis	Indian bank martin.	930	Ardea leucoptera ..	Pond heron.
438	Chatarrhæa caudata ..	Striated bush babbler.	1004	Pelecanus Philippensis.	Grey pelican.
687	Temenuchus pagodarum.	Black-headed myna.			

Mammalia.—The following skeletons were prepared:—

Presbytis jubatus	Nilgiri langur.
Felis tigris	Tiger.
Do. pardus	Leopard.
Herpestes griseus	Madras mungoos.
Mellivora indica	Indian badger.
Bubalus bubalis	Domestic buffalo.
Elephas indicus	Indian elephant.
Mus bandicota	Bandicoot rat.
Lepus ruficaudatus	Indian hare.

The elephant referred to was a solitary male, which is stated to have been dangerous, and to have formerly killed two men. It was crossing some open country between two forests in the neighbourhood of Chengam, and was followed by a crowd of villagers who fired at it and eventually secured it with ropes in the village of Quilam, where it died. The height of the animal is said to have been about 11 feet.

The following skulls were prepared:—

Felis pardus	Leopard.
Lepus ruficaudatus	Indian hare.
Neomeris phocænoides	Finless dolphin.

The following animals were stuffed:—

Presbytis johnii	Malabar langur.
Cynopterus marginatus	Small fox bat.
Rhinopoma microphyllium	Long-tailed leaf bat.
Kerivoula picta	Painted bat.
Tupaia ellioti	Madras tree-shrew.
Felis chaus	Jungle cat.

The specimens of Kerivoula picta were captured by Surgeon-Major Hackett in his compound in Madras in the early morning, as they were flying around the plantain trees. "This very beautiful bat," Jerdon says (Mammals of India, p. 43), "which, when disturbed in the day time, looks more like a butterfly or moth than a bat, has been found over a great part of India, though nowhere common. I first

obtained it at Madras, and subsequently on the Malabar coast. It has also been found in Bengal, in Dacca, where said not to be rare, and called the 'orange bat;' also in Ceylon, and in Burma and Malayana. It conceals itself in the folded leaf of the plaintain, and its Ceylonese name is properly, as Kelaart tells us, *Kehelvoulha*, meaning "*plantain bat.*"

The specimen of Tupaia ellioti was obtained on the Shevaroy Hills by Mr. W. M. Daly, to whom the Museum is indebted for the donation. The type specimens of this species were obtained by the late Sir Walter Elliot from the Eastern Ghâts between Nellore and Cuddapah.

A specimen of a skull and horns of the wild buffalo (*Bubalus arni*) was acquired by purchase. The length of the line from tip to tip of the horns is 8 feet 7½ inches, and the length of the horns round the outside of them and across the forehead 12 feet 2 inches. In a specimen of the same animal from Central Assam in the British Museum, the same measurements are as follows :—

	FT.	IN.
Length of the horns round the outside of them and across the forehead	12	2
Length of line from tip to tip of the horns	6	8

11. ETHNOLOGY AND ANTIQUITIES.—To Mr. R. Bruce-Foote, Superintendent of the Geological Survey of India, the Museum is indebted for the loan of a portion of his beautiful collection of neolithic and palæolithic implements, celts, corn-crushers, cores, flakes, &c., found in Southern India.

In June 1887 Mr. A. Rea, First Assistant, Archæological Survey Department, proceeded to Pallávaram to attempt the removal of one or more of the ancient pottery sarcophagi to the Museum. From the unwieldiness and fragility of these tombs, the work was expected to be of great difficulty, if not impossibility, as all those hitherto discovered were completely covered with cracks, some of them having not even a square foot of unbroken surface. By the exercise of very great care, however, two of them were safely transferred to the Museum. Of these, one was a pyriform tomb about 2 feet in diameter and 3 feet 6 inches in depth. Around the rim were traces of a cover which had once closed it, being exactly like another semi-globular chatty inverted and placed over the top. A quantity of unburnt human bones were found lying below the earth and stones which filled the tomb. The other was an oblong tomb 6 feet long, 1 foot 8 inches deep, and 1 foot 6 inches broad, and had two rows of legs. It had a number of cracks over its surface, which were cemented together.

These tombs have been set up in the gallery of antiquities.

12. The Right Honorable the Governor visited the Museum during the year.

(Signed) EDGAR THURSTON,
Supdt., Govt. Central Museum.

GOVERNMENT CENTRAL MUSEUM,
EGMORE,
Madras, 4th July 1888.

APPENDICES.

A.

GENERAL LIST OF THE CONTRIBUTIONS, &c., RECEIVED FOR THE GOVERNMENT CENTRAL MUSEUM FROM 1ST APRIL 1887 TO 31ST MARCH 1888.

	NO.
Agri.-Horticultural Society, Honorary Secretary—	
Rope and basket made out of "pish" (*Chamæ rops Ritchicana*) leaves ...	...
Arbuthnot and Company, Messrs., Proprietors, Madras Portland Cement Works—	...
Specimens of Madras Portland Cement	5
Baker, Captain—	
Fish (Stegostoma tigrinum)	1
Bartlett, W. H., Esq.—	
Woodpecker (Brachypternus chrysonotus)	1
Bellary, District Magistrate of—	
Brass coins	13
Bidie, Surgeon-General G., M.B.,C.I.E.—	
Palmyra fibre baskets used for carrying onions on boardship at Tuticorin ...	3
Bond, Master, H.—	
Moth	1
Bourne, Dr. A. G.—	
Frog (Ixalus variabilis.)	1 } 2
Fish (Muræna tessellata)	1 }
Cammiade, Master—	
Egg	1
Carter, H. R. P., Esq.—	
South Indian Hedgehog (Erinaceus micropus)	2
Coimbatore, Collector of—	
Silver coins	14
Curtis, Colonel—	
Batrachian (Ixalus variabilis)	1
Daly, William Mahon, Esq., Yercaud, Shevaroys—	
Bird (Astur badius)	1
Birds (Estrelda amandava)	3
Birds' eggs {Caprimulgus asiaticus ... ... 2 / Seena aurantia ... ... 2 }	4
,, (Pelicanus philippensis)	1
,, (Urrua coromanda)	1
,, (Falco jugger)	1 } 17
,, (Micronisus badius)	1
,, (Cotyle sinensis)	1
,, (Glareola lactea)	1
Frog (Callula triangularis)	1
Snake (Silybura shortii)	1
Annelida and crustacea from Covelong.	
Ditmas, F. W., Esq.—	
Tortoise (Emys trijuga)	1 } 3
Embryo of do. (do.) within its egg	1 }
Snake (Chersydrus granulatus)	1 }
Dodd, Messrs. W. and A.—	
Birds' eggs	13
Doyle, Reverend James—	
Abnormal Duck's egg	1
Fiddian, J. P., Esq.—	
Death's head moth (Acherontia atropos) ?	1
Fisher, Mr. J.—	
Copper Bactrian, Indo-Scythic and Gupta coins	8
Foote, R. B., Esq., F.G.S., Geological Survey of India—	
Drinking bowl found at a depth of 2 or 3 feet below the surface of the bat ground in the second south passage of the Yerreozari Gabbi (cave) near Banganapalle, Kistna district.	
Gilchrist, William, Esq.—	
Jungle cat (Felis chaus)	1 } 2
Larva of a beetle	1 }
Giles, Dr.—	
(Amphioxus lanceolatus)	1 } 2
Crustacea, echinodermata, &c., dredged off the Seven Pagodas by H. M. S. S. *Investigator*	Lot. }
Gnanapragasum, T. A., M.R.Ry.—	
Hyderabad dubs	5
Govindarajooloo, M., M.R.Ry.—	
Abnormal hen's eggs	2

Griffin, Albert Charles, Esq.—			No.
Insect (Bacillus sp.)			1
Ghulam Dastgir Sahib—			
Crab			1
Hackett, Dr. A. L., Kilpauk—			
Painted bats (Kerivoula picta)			2
Hakim Mahomed Abdul Ali—			
Mahommedan bookstand designed out of a single piece of wood			1
Hasted, Colonel, R.E.—			
Moth			1
Havell, E. B., Esq., Superintendent, School of Arts, Madras—			
Chrysalis of a butterfly (Euplœa asela)	1		
Moth (Partula macrops)	1	3	
Tusser silk worm	1		
Henderson, Captain, Acting Principal, Civil Enginering College, Madras—			
Eggs (Hypotriorchis severus)	4		
,, (Athene brama)	2		
,, (Drymoipus inornatus)	3		
,, (Ploceus baya)	3		
,, (Passer indicus)	3	33	
,, (Columba intermedia)	5		
,, (Herodias egrettoides)	6		
,, (Tantalus leucocephalus)	6		
Egg (Ardeola leucoptera)	1		
Henderson, Dr., Egmore—			
Frogs Rana gracilis (Nilgiris)	2		
Batrachian (Callula olivacea)	1		
Fish (Syngnathus acus)	1		
Crustacea (Matuta miersei)	2		
,, (,, lunaris)	1		
,, (,, victrix)	1		
,, (Albunea symnista) male and female	2		
,, (,, ,,)	1	20	
,, (Diogenes miles)	2		
,, (,, custos)	1		
,, (,, herbstii)	1		
,, (Dorippe sp.)	1		
,, (Calappa sp.)	1		
Mollusc (Bulla fasciata)	2		
Copper Dutch East India Company's coins.			
Higgins, A. W. B., Esq., Deputy Conservator of Forests, Cuddapah—			
Beetle			1
Holmes, W. Hamilton, Esq., Madras Club—			
Moths (Bombyx mori)	3	4	
Caterpillar of a moth (Antheræa perrotetti)	1		
Honorary Secretary (Philological), Asiatic Society of Bengal, Calcutta—			
Gold coins	2	45	
Silver coins	43		
Hutchins, Captain H. L., M.S.C.—			
Earthenware Burmese Guatamas, one silvered and one gilt	2	4	
,, Peacock pice (different)	2		
James, Captain, Nungumbaukum—			
Stone shot from Pámban			1
James, C. W., Esq.—			
Moth	1	2	
Cocoon	1		
Jensen, Rev. H.—			
Shells (Helices) from Denmark			19
Johnston, J. C., Esq., Executive Engineer, Cuddapah Division—			
Old copper still found amidst the foundations of the old Collector's Cutcherry, Cuddapah.			
Judge, H. M., Mr.—			
Insect (Nepa grandis)			1
Laing, Mrs.—			
Woodcock (Scolopax rusticola)			1
McLeod, Colonel H.—			
Crustacea (Hippa asiatica)			1
Madura, Collector of—			
Caterpillars destructive to dry crops ... ... Lot.		2	
Coins ... ... ,,			
Mahomed Mason Sahib, Triplicane—			
Abnormal hen's egg			1

		NO.
Mahomed Mossim, Triplicane—		
Egg of a snake		1
Malabar, Collector of—		
Gold fanams		63
Marshall, H. H., Esq.—		
Pumice stone		1
Mason, Master Charles William—		
Butterfly		1
Mason, Miss Hilda—		
Moth		1
Michie Smith, C., Esq.—		
Copper Dutch East India Company's coins.		
Minchin, J. W., Esq —		
Rhæa fibre.		
Moss, Samuel C., Esq., Forest Department—		
Mineral specimens		2
Mylitta Silk Mills Company. The Managing Director of the—		
Samples of Tussar cocoons, silk, and waste	...Lot.	6
„ of "Yama mai" cocoons and silk reeled from them	... „	
„ of Pernyi cocoons and silk reeled from them	... „	
„ of Eria cocoons	... „	
True Bombyx mori cocoons reared in France from Japan seed	... „	
Skein of Tussah silk spun by the native process	... „	
Mysore Government Museum, Superintendent of—		
Silk cotton		1
Nellore, the District Forest-officer—		
Specimen of Asbestos		1
Phipps, Captain—		
Marine invertebrata—		
Porter, Dr. A.—		
Jungle sheep's skin		1
Miss Angalique Sauria Halkie, the Estate of—		
Portuguese Gold coin of the last century		1
President, Municipal Commission, Madras—		
Tiger cub (Felis tigris)	1	9
Cheetahs („ pardus)	2	
Badger (Mellivora indica)	1	
Kangaroo (Macropus sp.)	1	
Cockatoo (Cockatua sp.)	2	
Pheasant (Lophophorus impeyanus)	1	
Pelican (Pelecanus philippensis)	1	
Price, J. F., Esq.—		
Land crab (Telphusa n. sp.) from Ootacamund.—		
Rajagopala Charriar Avergal, P., M.R.Ry., Acting General Deputy Collector, Námakal Division—		
Double-stinged scorpion		1
Rajaratna Moodelliar, P., M.R.Ry.—		
Green Parrot (Electus polychrous)		1
Rea, A., Esq.—		
Tombs from Pallávaram	2	11
Small pots found in a tomb having a quantity of bones in one	9	
Robinson, W. R., Esq.—		
Bat (Taphozous longimanus)	1	2
Insect (Nepa grandis)	1	
Runganayacooloo Chetty, S., M.R.Ry., Saidápet—		
Shells	Lot.	
Salem, District Forest-officer—		
Fibres		24
Shortt, J., Retired Deputy Surgeon-General—		
Bird (Iora zeylanica)	1	86
Birds' skins (not fit for stuffing)	3	
Bird in spirit	1	
Reptiles	22	
Frogs	21	
Toad	1	
Tadpoles	27	
Insects	7	
Caterpillar	1	
Ants	Lot.	
Ant's nest	1	

	No.
Smart, Captain—	
Insects from Elephanta	10
Spence, Lieutenant, Gun Powder Factory, Madras—	
Caterpillar	1
South Canara, the Collector of—	
Gold coins	3
Steavenson, J., Esq.—	
Insect (Cerambyx sp.)	1
A curiously flattened Casuarina stem	1 } 2
Stephenson, A. E., Esq.—	
Abnormal chicken	1
Egg	1 } 2
Tanjore, Collector of—	
Gold coins	7
Taylor, Captain J. H.—	
Chola copper coins	4
Thomas, H. S., Esq.—	
Fresh water fishes from Kodaikánal.—	
Thomas, Miss, Nungumbaukum—	
The Indian Koel (Eudynamis orientalis).	♀
Thorowgood, F. N., Esq., Nungumbaukum—	
Russell's Viper (Daboia elegans)	1
Tracy, Rev. J., Tirumangalam—	
Specimens of pottery from Paravai	2
Tufnell, Captain R. H. C.—	
Reptiles and Batrachians from Kodaikánal	} Collection.
Lepidoptera from Palni Hills	}
Vadanayagam Pillay, M.R.Ry.—	
Specimen of fossil wood	1
Váyalpád Taluk, Sub-Collector of—	
Gold coin	1
Venkaya Royadu, Maharajah, B.—	
Fossil shells	13
Wicks, Captain G., Port officer, Mangalore—	
Bird (Sterna javanica)	1
Fish (Balistes erythrodon)	1 } 3
„ (Ichthyscopos inermis)	1

B.

VISITORS to the Government Central Museum from 1st April 1887 to 31st March 1888.

1887-88.	SIGNATURES MADE IN											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagaree.	Guzerattee.	Canarese.	Chinese.	Singalese.	Malayalam.	Bengalee.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	1,665	333	135	1,084	14	5	13	8	..	..	18	..
May	2,460	314	145	1,204	2	5	12	18	..	1	15	..
June	2,815	626	242	2,236	10	4	23	33	2	..	10	..
July	2,039	463	197	1,702	8	15	28	2	..	..	53	..
August	2,273	589	350	2,080	21	7	38	12	..	..	65	..
September	2,000	362	122	1,731	13	4	21	16	..	..	51	4
October	1,386	328	107	1,648	9	5	5	16	..	..	64	..
November	1,973	482	334	1,494	2	18	34	50	..	..	56	..
December	4,220	574	237	2,306	19	30	115	42	..	3	103	3
January	3,425	606	298	1,879	18	31	57	32	..	..	65	6
February	2,184	409	222	1,439	8	9	18	24	..	..	39	..
March	2,164	472	258	1,545	9	10	46	15	3	5	43	3
Total	28,604	5,558	2,647	20,348	133	143	410	268	5	9	582	16

1887-88.	Total of signatures.	Unable to sign, but tally kept.	Total of visitors.	Number of		Total of visitors.
				Men and boys.	Women and girls.	
	14	15	16	17	18	19
April	3,275	10,483	13,758	8,211	5,547	13,758
May	4,176	10,934	15,110	9,274	5,836	15,110
June	6,001	14,971	20,972	13,820	7,152	20,972
July	4,507	13,507	18,014	10,925	7,089	18,014
August	5,435	15,845	21,280	13,162	8,118	21,280
September	4,324	14,431	18,755	11,301	7,454	18,755
October	3,568	13,236	16,804	9,829	6,975	16,804
November	4,443	12,964	17,407	10,748	6,659	17,407
December	7,652	39,487	47,139	24,757	22,382	47,139
January	6,417	29,229	35,646	19,698	15,948	35,646
February	4,352	15,748	20,100	12,708	7,392	20,100
March	4,573	14,624	19,197	11,307	7,890	19,197
Total ..	58,723	205,459	264,182	155,740	108,442	264,182

C-1.

List of Books added to the Public Library.

1.—*By Purchase (Standard Works).*

	Volumes.
Agassiz, Monographies D'Echinodermes Vivans et Fossiles	1
Agricultural Pests of India, by Balfour, E.	1
Alwis, Rev. C.—History of the Island of Lanka	1
Arnold, Edwin—Poetical Works of	6
Arnold, Edwin—India revisited	1
Burmese Scripture on Cadjan	1
Ceylon—A General Description of the Island, Historical, Physical, Statistical, by an Officer, late of the Ceylon Rifles	2
Church, A. H.—Food-grains of India	1
Claus and Sedgwick Elementary Text Book of Zoology	2
Curtis' Botanical Magazine, Vol. 43, for 1887	1
Darwinism Tested by Language, by F. Bateman	1
De Candolle Monographiæ Phanerogamarum, Vol. 5, Part 2	1
Depths of the Sea, by Wyville Thomson	1
Distinguished Anglo-Indians, by W. F. B. Laurie	1
Eastern Carpets, by Vincent Robinson	1
Encyclopædia Britannica, Vol. 22nd	1
Fauna and Flora Des Golfes Von Neapel	7
Geddes, M.—History of the Church of Malabar	1
Geddes, M.—History of the Church of Ethiopia	1
Gcherzer, Reiffe Der Novara um Die Erde, Erster Band	2
Gutzlaff's Sketch of Chinese History	2
Hæckel System Des Craspedoten	2
Heber, R.—Narrative of a Journey through the Upper Provinces of India	3
Hincks, T.—History of the British Marine Polyzoa	2
Indian Ferns, by C. E. Baynes	1
Initial Coinage of Bengal, by Edward Thomas	1
Inglis, D.—Spain in 1830	2
Jenyns, Rev. F. G.—A Book about Bees	1
Jerdon's Illustrations of Fishes	1
Lee, A. B.—The Microtomist's Vade Mecum	1
Leuckart, Rudolf—The Parasites of Man	1
Life and Letters of Charles Darwin	3
Lotus and Jewel, by E. Arnold	1
Manual of Ethnology, by C. L. Brace	1
Map of the Island of Ceylon	Map 1
Marion's Practical Guide to Photography	1
Nomenclature of Color for Naturalists by Ridgway, R., 1886	1
Now and Then, by Samuel Warren	1
Oakely, R. B.—The Pagoda of Hallibeed, folio	1
Oostindische Voyagien	2

	Volumes.
Ormerod, E. A —Report on Injurious Insects	1
Percival's, P., Rev.—Tamil Proverbs with English Translation	1
Physiography, an Introduction to the Study of Nature, by T. H. Huxley	1
Price, M. D.—Memoirs of the Emperer Jahangheir	1
Quarterly Journal of Microscopical Science, Nos. 102 to 108	7
Recent Polar Voyages—A Record of Adventure and Discovery	1
Skeen, W.—Early Typography	1
Standard Pronouncing Dictionary of the English Language by Nuttall, P. A	1
Stewart, C.—Memoirs of the Moghul Emperor Humayun	1
Streeter, C. W.—Pearls and Pearling Life	1
Tank Angling in India, by H. S. Thomas	1
The British Isles, by E. Reclus	1
The Copper, Tin and Bronze Coinage and Patterns for coins of England	1
The Ocean, by E. Reclus	1
Thomas, E.—Early Sassanian Inscriptions, Seals and Coins	1
Transactions of the Internationl Congress of Prehistoric Archæology, 1868	1
Wheeler, J. T.—India under British Rule	1

C-2.

Periodicals.

American Naturalist—Nos. 1 to 12 for 1887, October wanting.
Annual Register—for 1886.
Asiatic Journal and Monthly Register from the year 1825 to 1836—Vols. 31.
Asylum Press Almanac for 1888.
Illustrated London News—Vols. 91-92, for 1887-88.
Journal of the Royal Asiatic Society of Great Britain and Ireland—Vol. 19, for 1887.
London Times, Weekly Edition—Nos. 536 to 583, for 1887-88.

C-3.

By Gift (Standard Works).

	Volumes.
Albertic Theorem, by Venkaya Royadu, B	1
Archæological Survey of India Reports, Vol. 23rd, Punjab and Rajputana, 1883-84, by Garrick	1
Archæological Survey of India Reports, by Cunningham, Vols. 1 to 23, with General Index	1
Buckler, W.—Larvæ of British Butterflies and Moths, Vols. 1 and 2	2
Candles, by G. Watt	2
Catalogue of the Moths of India, by E. C. Cotes, Parts 1 and 2	2
Catalogue Des Plantes Des Jardins Coloniaux, Pondicherry	1
Cyclone Memoirs, Part 1, Bay of Bengal, May 20th—28th, 1887	1
Civil Travelling Code, Chapters 1 to 15 only, Provisional issue	1
Descriptive Catalogue of the Medusæ of the Australian Seas, by R. V. Lendenfeld ...	1
Description of Roman Imperial Aurei, by Caldwell	1
Department of Agriculture Report, 1886	1
First Report on the Collection of Birds in the Colombo Museum	1
Geological Annual Report, Vol. 1, 1885	1
Hooper, Gums, Resins and other Economic Products in the Mysore Government Museum—Notes on the	1
Hooker's Flora of British India, Parts 13 and 14	2
Imperial Gazetteer of India, by W. W. Hunter, Vols. 9, 10, 11	3
King, New Species of Ficus from New Guinea	1
Lepidoptera of Ceylon, by F. Moore, Part 13	1
List of Photographs of Ancient Buildings and Antiquities, Madras	1
List of Notifications and Rules	1
List of Wood Specimens in the Museum of the Central Forest Office, Madras	1
Madras Meridian Circle Observations, 1862—1864	1
Manava Dharma Sastra, by V. N. Mandlike	3
Manual of the Coimbatore District, by F. A. Nicholson	1
Manual of the Geology of India, Part 4, Mineralogy, by F. R. Mallet	1
Manual of Malabar, Vol. 2, by W. Logan	2
Map of India showing density of Population	1
"My Children," Part 1, Their Health	1
New Law of Oscillation and a New Theory of Tides, Winds, &c., by Venkaya Royadu...	1

	Volumes.
Notices of Sanskrit Manuscripts by Rajendralala Mitra, Vol. 4, Part 2 ; Vols. 5 to 8 and Vol. 9, Part 1, Nos. 13 to 22 for 1877 to 1886-87	10
Numismatique Des Indes Neerlandaises	1
Paper-making, by Cross, C. F., and Bevan, E. J.	1
Photograph of the Eight-branched Palmyra Palm near Tanjore	1
Photograph of the largest Car in South India, Tiruválúr in Tanjore, decorated for the Festival	1
Pictorial Tour round India	1
Preservation of National Monuments, India, Agra and Gwalior	1
Preservation of National Monuments, Delhi	1
Preservation of National Monuments, Meywar	1
Preservation of National Monuments, Buildings in the Punjab	1
Preservation of National Monuments, India; Great Temple to Siva and his Consort at Madura	1
Preservation of National Monuments, India, Græco-Buddhist Sculptures from Yusufzai.	1
Preservation of National Monuments, India, Temples at Trichinopoly	1
Preservation of National Monuments, India, Tomb of Jahangir at Shahdara near Lahore	1
Preservation of National Monuments, India, Golden Temple at Amritsar, Punjab ...	1
Preservation of National Monuments, India, Great Buddhist Tope at Sanchi	1
Religious Reform, Parts 1 and 2, Philosophic Hinduism	2
Report on the Search for Sanscrit Manuscript in the Bombay Presidency by Bhandarkar, R. G., 1883-84	1
Report on the Scientific results of the Exploring voyage of the *Challenger*, H. M. S., 1873—76, Botany, Vol. 2nd	1
Report on the Scientific results of the Exploring voyage of the *Challenger*, H. M. S., 1873—76, Zoology, Vols. 17 to 22	9
Smithsonian Report, 1885, Part 1	1
Species of Loranthus indigenous to Perak, by G. King	1
The Entomologist, 1887, Nos. 288 and 289	2
The Buddhist Stupas of Amarávati and Jaggayapet in the Kistna district, Madras Presidency, by J. Burgess	1
Thomas—The Pearl Oyster of the Gulf of Manaar	1
United States Department of Agriculture—Fourth Report of the United States Entomological Commission, by Riley, V.	1
United States Department of Agriculture—Reports of Observations and Experiments in the Practical work of the Division, Nos. 13 and 14	4
United States Department of Agriculture, Division of Entomology—The Icerya or Fluted scale or cottony cushion, scale No. 15	2
United States Department of Agriculture—Work of the Division of Entomology for the Season of 1885, No. 12	1
Watts', G.—Report on Indian Fibres and Fibrous substances	1
Woods—Catalogue of, in the Mysore Government Museum	1

C-4.

Periodicals (By Gift).

Avifauna of British India and its Dependencies, by James Murray, Parts 2 and 3, for 1887.
Fort St. George Gazette, Nos. 13 to 49 for 1887; Nos. 1 to 13 for 1888.
Gazette of India, Nos. 13 to 53 for 1887; Nos. 1 to 12 for 1888.
Indian Antiquary by Burgess, J., Vol. 16 for 1887.
Journal of the Asiatic Society of Bengal, Part 1, Nos. 1 and 2; Part 2, Nos. 1 and 2 for 1887.
Journal of the Bombay Branch of the Royal Asiatic Society, Vol. 17, No. 46 for 1887.
Journal of Indian Art, Parts 17 to 21.
Madras Journal of Literature and Science, by Tufnell, R. H C., Part 1 for 1886-87.
Memoirs of the Geological Survey of India (Palæontologia Indica), Vol. 4, S. 10—13.
Memoirs of the Geological Survey of India, Vol. 24, Part 1.
Oesterreichische Monatsschrift fur den orient, Nos. 2 to 5, 9, 10, 11 and 12 for 1887.
Proceedings of the Asiatic Society of Bengal, Nos. 1 to 8 for 1887.
Quarterly Journal of Veterinary Science in India, Nos. 17—22 for 1886-87.
Records of the Geological Survey of India, Nos. 1—4 for 1887.
Statement of Imports and Exports, March to December 1887, January and February 1888.
The Pandit—A monthly publication devoted to Sanscrit Literature, Nos.1 to 12 for 1887.
The Indian Annals and Magazine of Natural Science by Murray, J. A., Vol. 1, Nos. 1—3 for 1887.

C-5.

Reports.

	Volumes.
Administration Report of the Bombay Jails for 1886	1
Administration Report of the Jails of Bengal for 1886	1
Administration Reports, 1885 (Part 4, Miscellaneous, Ceylon Museum)	1
Annual Report on the Foreign Trade of the North-Western Provinces and Oudh for 1887	2
Annual Report, with Tabular Statements of the Condition and Management of the Jails in the North-Western Provinces and Oudh for 1886	1
Annual Report of the Madras Court of Small Causes for 1886	1
Annual Report on the Jails of the Hyderabad Assigned Districts for 1886	1
Annual Administration Report of the Forest Department, Madras Presidency, for 1885-86	1
Annual Report on the Government Cinchona Plantation in Bengal for 1886-87	2
Annual Report of the Royal Botanic Garden, Calcutta, for 1886-87	2
Annual Report of the Khandesh Experimental Farm for 1887	2
Annual Report of the Administration of the Land Revenue in Assam for 1886-87	1
Annual Report on the Administration of the Prisons in the Province of Coorg for 1886.	1
Annual Report of the Lunatic Asylums in the Madras Presidency for 1886	1
Annual Report of the Director, Land Records and Agriculture, Bombay Presidency, for 1886-87	2
Annual Report of the Department of Land Records and Agriculture, Assam, for 1886-87	2
Annual Report of the Agricultural Department, Bengal, for 1886-87	2
Annual Report of the Madras Medical College for 1886-87	1
Annual Report of the Department of Revenue Settlement and Agriculture, Madras, for 1885-86	1
Annual Report on the Progress and Condition of the Mysore Government Museum for 1887	1
Annual Report of the Government Experimental Farm, Hyderabad, Sind, for 1887	2
Annual Returns of the Civil Hospitals and Dispensaries in the Madras Presidency for 1886-87	1
Annual Volume of the Sea-borne Trade and Navigation of the Madras Presidency for 1886-87	1
Accessions to the Indian Museum, Appendix A, for 1886, Part 4	4
Charts of the Bay of Bengal	1
Civil Justice Report of Lower Burma for 1886	1
Civil Statements of the North-Western Provinces for 1886	1
Criminal Justice Report of Lower Burma for 1886	1
Criminal Statements of the North-Western Provinces for 1886	1
Crop Experiments, Bombay Presidency, for 1885-86 and 1886-87	4
Cultivation of the Sugarcane in Bombay	2
Department of Agriculture, Central Provinces—Returns of Railway-borne Traffic for the quarter ending 31st December 1886	1
Department of Agriculture, Central Provinces—Report on the Nagpur Experimental Farm for 1886-87	1
Department of Land Records, Settlement and Agriculture, Central Provinces—Returns of Railway-borne Traffic for the quarter ending 31st March 1887	4
Department of Revenue Settlement and Agriculture, Madras, 1887—Report on the Out-turn of early crops	1
Fifth Annual Report of the Board of Trustees, City of Milwankee, for 1886-87	1
Indian Meteorological Memoirs, by H. F. Blanford, Vol. 3, Part 2; Vol. 4, Parts 2—4	4
Jeypore Economic and Industrial Museum—Third Report of	1
Madras Land Revenue Reports for 1885	1
Memorandum on the Preservation of Grain by Church	4
Memoirs on the Winds and Monsoons of the Arabian Sea and North Indian Ocean, by W. L. Dallas	1
Meteorological Observations recorded at six Stations in India, by Blanford, H. F., for 1887.	1
Monograph on Silk Industry in the Punjab, 1885-86	1
Progress Report of Forest Administration in the Hyderabad Assigned Districts for 1886-87.	2
Queensland Museum—Report of Board of Trustees for 1886	1
Report on the Prison Administration of Lower Burma for 1886	1
Report on Public Instruction in the Madras Presidency for 1885-86, 1886-87	2
Report on the Jails of the Punjab for 1886	1
Report on the Jail Administration of the Province of Assam for 1886	1
Report on the Administration of the Abkári Revenue in the Madras Presidency for 1885-86	1
Report on the Civil Justice in the Hyderabad Assigned Districts, for 1886	1
Report on Criminal Justice in the Hyderabad Assigned Districts, for 1886	1

	Volumes.
Report on the Jails of the Central Provinces for 1886	1
Report on the Cawnpore Experimental Station for the Kharif season for 1886 ...	2
Report on the Operations of the Department of Agriculture and Commerce, North-Western Provinces and Oudh, for 1886	2
Report on the Indian Section of the Colonial and Indian Exhibition for 1886	1
Report of the Commercial Conferences held in the Imperial Court of the Indian Section of the Colonial and Indian Exhibition, 1886	1
Report on the Horticultural Gardens, Lucknow, for 1887	2
Report on the Railway Trade of the North-Western Provinces and Oudh for 1887 ...	2
Report on the Judicial Administration, Civil, of the Central Provinces, for 1886 ...	1
Report on the Judicial Administration, Criminal, of the Central Provinces, for 1886 ...	1
Report on the Administration of Civil Justice in the Punjab and its Dependencies, for 1886.	1
Report on the Administration of Criminal Justice in the Punjab and its Dependencies, 1886.	1
Report on the External Trade of Bengal with Nepal, Tibet, Sikkim and Bhutan for 1886-87	1
Report on Arboriculture in the Hyderabad Assigned Districts for 1886-87	2
Report on the Revenue Administration of the Punjab and its Dependencies for 1886-87.	1
Report on the Progress and Condition of the Government Botanical Gardens at Saharanpur and Mussoorie for 1887	2
Report on the Administration of the Department of Salt Revenue in the Presidency of Fort St. George for 1885-86	1
Reports on the Revenue Administration of Lower Burma for 1886-87	3
Report on the Administration of the Meteorological Department of the Government of India in 1886-87	1
Report on the River-borne Traffic of the Lower Provinces, Bengal, and on the Inland Trade of Calcutta, and on the Trade of Chittagong and the Orissa Ports, with Notes on Road Traffic, 1885-86	1
Report on the Meteorology of India in 1885-86	2
Report on the Administration of the Madras Presidency for 1886-87	1
Report on the Operations of the Department of Land Records and Agriculture, North-Western Provinces and Oudh, for 1887	2
Report on the Administration of Criminal Justice in Oudh for 1886	1
Report on the Administration of Civil Justice in Oudh for 1886	1
Report of the Assistant Director of Agriculture on Tobacco cultivation in Burma during the season of 1885-86	1
Report of the Department of Land Records and Agriculture, Deccan, for 1887 ...	1
Report on the Cawnpore Experimental Station for the Rabi season of 1886-87	2
Report on the Rail-borne Trade of Bengal for 1885-86	1
Report on the Government Agri-Horticultural Gardens, Lahore, for 1886-87	2
Reports on certain samples of the pods of the Divi-divi tree from Bombay	2
Report of certain Tobacco manufacturers in Great Britain and Ireland for 1886 ...	2
Resolution on the Revenue Administration of the Central Provinces for 1885-86 ...	1
Resolution on the Management by Government of Private Estates in the Central Provinces for 1886	1
Returns of Agricultural Statistics of British India for 1885-86	1
Review of the Revenue Administration of the Province of Oudh for 1886	1
Review of Forest Administration in British India for 1885-86	1
Revenue Records, Punjab, on the Wheat crop of the Punjab for 1886-87	2
Scientific Memoirs by Medical Officers of the Army of India, Part 3, for 1887	1
Selections from the Records of the Mysore Government for 1887	1
Selections from the Records of the Government of India, Home Department, for 1885-86.	2
Supplement to the Australian Museum Report for 1886	1
Thirty-fourth Annual Report of the Managing Committee of the Kurrachee Municipal Library and Museum, 1887	2
Trade Report of the North-Western Provinces and Oudh for 1886	2

C-6.

Patent Office Papers.

	Volumes.
Alphabetical Index of Patents and Applicants for Patents of Inventions, from January to October 1886	2
Index of Applicants for Patents of Inventions for 1886	1
Index of Applicants for Patents of Inventions, from January to September 1887 ...	6
Specifications relating to Sewing and Embroidering, Part 2, A.D. 1867—76	1
Specifications relating to Brewing, Wine-making and Distilling Alcoholic liquors, Part 3, A.D. 1877—1883	1

	Volumes.
Specifications and Drawings, Vols. 33 to 60 and 70 to 81, for 1885	40
Specifications and Drawings, Vols. 1 to 32 for 1886	32
Subject-matter Index of Applications for Letters Patent, from January to November 1886	3
Subject-matter Index of Applications for Letters Patent, from January to September 1887	6

D-1.

LIST OF BOOKS ADDED TO THE SCIENTIFIC LIBRARY.

By Purchase (Standard Works).

	Volumes.
Barraude, F. J., Systeme Silurien du Centre de La Boheme, Vol. 7, 1887	1
Beddard, F. E.—The Zoological Record for the year 1886, Vol. 23	1
Iconographie der Schalentragenden Europaischen Meeresconchylien, by Dr. W. Kobelt Heft, 6 and 7	1
Semper, Dr. C., Reisen in Archipel deo Philippinen Zweiter Theil die Marseniaden, Supt. Heft 4, 1887	1
Semper, Dr. C., Reisen in Archipel der Philippinen Zweiter Theil die Tagfalter Rhopalacera	1

D-2.

Periodicals.

Annals and Magazine of Natural History ...	Nos. 111 to 120 for 1887; Nos. 1 and 2 for 1888.
Annales de la Societe Entonologique de France.	No. 4 for 1886; Nos. 1 to 3 for 1887.
Annales des Sciences Naturelles, Botanique ...	Vols. 5 and 6 for 1887.
Annales des Sciences Naturelles, Zoologie ...	Vols. 3 and 4 for 1887.
Bulletin de la Société Imperiale de Moscou ...	No. 4 for 1886.
Ibis—A Quarterly Journal of Ornithology ...	Nos. 17 to 20 for 1887; No. 21 for 1888.
Journal de Conchyliologie	Vol. 35, Nos. 1 to 4 for 1887.
Journal of the Linnean Society, Botany ...	Nos. 152 to 154 for 1886 Nos. 158 to 161 for 1887.
Journal of the Linnean Society, Zoology ...	Nos. 127 to 137 for 1887.
Nature—A Weekly Illustrated Journal of Science.	Vols. 35-36, Nos. 906 to 939 for 1886-87; Vol. 37, Nos. 940 to 959 for 1887-88.
Nouvelle's Archives du Museum d' Histoire Naturelle.	No. 2 for 1886; No. 1 for 1887.
Proceedings of the Zoological Society ...	No. 4 for 1886; Nos. 1 to 3 for 1887.
Quarterly Journal of the Geological Society...	Nos. 169 to 172 for 1887.
Transactions of the Entomological Society ...	Nos. 1 to 4 for 1887.
Transactions of the Entomological Society, Botany.	Vol. 2, No. 10 for 1885-86.
Transactions of the Palæontographical Society.	Vols. 40-41 for 1886-87, 2 Vols.

D-3.

By Gift (Standard Works).

	Volumes.
A General Guide to the British Museum (Natural History)	1
Ancient Egyptian texts from the Coffin of Amamu in the British Museum, folio ...	1
Catalogue of the Fossil Mammalia in the British Museum, Part 4, by R. Lydekker ...	1
Catalogue of Bengali Printed books in the British Museum	1
Catalogue of Lizards, Second edition, Vol. 3rd, by G. A. Boulenger...	1
Catalogue of Coins of the Shâhs of Persia in the British Museum	1
Guide to the Galleries of Reptiles and Fishes	1

D-4.

Fish Library.

	Volumes.
Correspondence relative to the North American Fisheries, 1884—87	2
Fifth Annual Report of the Fishery Board for Scotland for the year 1886	1

	Volumes.
First Annual Report of the Inspector of Sea Fisheries, England and Wales, for the year 1886	1
Report of the Inspectors of Irish Fisheries of the Sea and Inland Fisheries of Ireland for 1886	1
Sea Fisheries of the United Kingdom	1
Summary of Reports by Officers of the Fishery Board in Scotland	1
Twenty-sixth Annual Report of the Inspectors of Fisheries, England and Wales, for the year 1886	1
United States Commission of Fish and Fisheries. The Fishery Industries by Goode, G. B.	2

D-5.

Blue Books.

	Volumes.
Convention between Her Majesty and His Majesty the Emperor of China relating to Burma and Thibet	1
Correspondence respecting the Ruby Mines of Upper Burma, No. 2, 1887	1
Correspondence respecting the Affairs of Central Asia, No. 1 (1887)	1
East India (Abkári Administration)	1
East India Accounts and Estimates, 1887-88	1
East India (Abkári Administration, Tannah and Kolaba)	1
East India (Contagious Diseases Acts)	1
East India Estimate for 1886-87	1
East India Loans raised in India	2
East India Loans raised in England	2
East India (Home Accounts)	1
East India Financial Statement, 1887-88	1
Further Correspondence relating to Burma, No. 1, 1887	1
Gold and Silver—First Report of the Royal Commission	1
India Public Service Commission—Extract from the Proceedings of the Government of India	1
Military Executions and Dacoity in Burma, No. 2 (1886)	1
Post Office Mail Contract (East India and China)	1
Proceedings of the Colonial Conference (1887), Vols. 1 and 2	2
Records of the India Office, by J. C. Danvers, Vol. 1, Part 1	1
Report of the Royal Commission for the Colonial and Indian Exhibition, 1886 ...	1
Report from the Select Committee on Forestry	1
Report on Sanitary Measures in India in 1885-86, Vol. 19	1
Report by Mr. H. E. Fulford of a Journey in Manchuria, China, No. 2 (1887) ...	1
Second Report of the Royal Commissioners on Technical Institution, Vol. 5 ...	1
Seventeenth Annual Report of the Deputy Master of the Mint, 1886...	1
Statistical Abstract relating to British India from 1876-77 to 1885-86, 21st number	1
Statement of the Trade of British India for the years 1880-81 to 1884-85	1
Statement of the Trade of British India with British Possessions and Foreign Countries for the five years 1881-82 to 1885-86	1

D-6.

Trübner's Oriental Series.

	Volumes.
E. H. Whinfield, Masnavi I Mánavi	1
F. H. Balfour, Chinese Scrapbook	1
J. Jolly, Manava Dharma Sastra	1
Miscellaneous Papers relating to Indo-China	2
R. N. Cust, Linguistic and Oriental Essays	1

D-7.

Record Publications from the Master of the Rolls.

	Volumes.
Calendar of Documents, Ireland, 1302-1307	1
Calendar of State Papers, Spanish, 1534-35	1
Chronicon Abbatiæ Rameseiensis	1
Chartularies, &c., St. Mary's Abbey, Dublin, Vol. 2nd	1
Cartularium Monasterie de Rameseia, Vol. 2nd	1
Letters and Papers, Foreign and Domestic, Henry 8th, Vol. 9, 1535	1

	Volumes
Polychronicon Ranulphi, Higden, Vol. 9	1
Registrum Epistolarum, J. Peckham, Arch. Cant. Vol. 3rd	1
Year Books, Edward III, years XIII and XIV	1

MADRAS,
4th July 1888.

(Signed) EDGAR THURSTON,
Superintendent, Government Central Museum.

E.

LOAN COLLECTION OF PREHISTORIC IMPLEMENTS COLLECTED BY R. B. FOOTE, ESQ., F.G.S., SUPERINTENDENT, GEOLOGICAL SURVEY OF INDIA.

Celts from the Shevaroy Hills, 12 specimens.
Celt hammers from Banda, Central India.
Celts from Banda, Central India.
Celts from the Bellary-Anantapur country.
Celts from the Bellary-Anantapur country.
Celt in second stage, the chip edges reduced by "picking."
Celt from Yunnan, Dr. Anderson's collection made of Jadeite.
Neolithic implements in first and second stages of manufacture, Bellary-Anantapur country.
Strikers.
Pounders.
Chisels.
Slyking stone or slick stone for giving a glass to the surface of woven materials.
Pounders or Pestles from the Bellary-Anantapur country.
Corn crushers from the Bellary-Anantapur country.
Hone or sharpening stone from Gadigama, Bellary district.
Mealing stones from the Bellary-Anantapur country.
Drilled stone from Vemaveram, Nellore district.
Drilled stone from the Southern Mahratta country.
Drilled stone from Valaiankulam, south of Madura.
Toy made by shepherd boys from Halakansli, south of Bellary.
Pendant of bone from the submerged forest Valimukkam, south coast of Madura district.
Valve of unio shell ground at edge found with antique pottery, &c., at Patpad, Banganapalle, Kurnool district.
Slaggy cinder with impressions of straw on the surface.
Part of a chank shell ground on one end, Bellary district.
Two beads—one green quartzite, one red cornelian, Hallakata hill, Siruguppa, Bellary district.
Circular scraper, Kopgal hill, Bellary district.
Scrapers from Kopgal, Bellary district, the same form still used for scraping skins by the Esquimaux.
Scraper flake, Yellapadugu, Gooty taluk, Anantapur, scrapers of chert, Bellary-Anantapur country.
Ruddlestone (soft hæmatite) for rubbing down into red pigment and for rouge, Tornagul hill, Bellary district.
Bead of shell, Patpad, Banganapalle, Kurnool district.
Round bead, red cornelian, Naggaradani hill, Bellary district.
Flint scrapers, English.
Scrapers of chert, Patpad, Banganapalle, Kurnool district.
Scrapers from French bone caves.
Flakes of chert and agate, Kallakata hill, Siruguppa, Bellary district.
Spear head? worked chert, Parpalla, Kurnool district.
Sling stone from Idapinkal hill, Gooty taluk, Anantapur district.
Sling stone from Patpad, Banganapalle, Kurnool district.
Sling stones from under the Sawyerpuram Teri, Tinnevelly district.
Flake of quartzite, Graham's Town, South Africa.
Flint flake, Hasseris, 8 miles south of Abborg, Denmark.
Flakes from French bone caves.
Small flakes used as lancets, drills, &c., made of chest and agate from various settlements, Bellary-Anantapur country.
Chert flakes, Jabalpur.
Flakes from under the "Teri," Sawyerpuram, Tinnevelly district, 1 of chert, 3 of quartz.
Flakes of green stone, Kopgal hill, Bellary.
Flake of Lydian stone, Helonan near Cairo.
Flake with worked edge, Le-monstier. Bone cave, France.
Leaf-shaped flake of chert, Bantanhal, Sorapur taluk, Nizam's Dominions.
Oval flake knife of flint, Lemonstier. Bone cave, France.
Unfinished implement of chert, Patpad, Banganapalle, Kurnool district.

Worked flake of chert, Idopinkal, Anantapur district.
Chert flake with a serrated edge, Tripatur, Madura district.
Bones from Midden heaps and cooking places in different settlements.
Palæolithic implement from Joga, Hospet taluk, Bellary district.
Implements of hard limestone, Yedhalli, near Sorapur, Nizam's Dominions.
Palæolithic implement from the laterite Muniyar, Ariyalur taluk, Trichinopoly.
Palæolithic implement of flint, Wangford, Essex, England.
Quartzite sling stone, Palæolithic.
Pottery from Neolithic settlements, Bellary-Anantapur country.
Six Palæolithic implements from gravel beds, Kolakandi, Bellary district.
Quartzite scraper, Palæolithic, from Madgi, Badani taluk, Bijapur district.
Quartzite scraper, Palæolithic, from the valley of the Maneru, Nellore district.
Arrow head of Obsidian, Mexico.
Arrow heads of flint, England and Ireland.
Arrow heads from under the Teri, Sawyerpuram, Tinnevelly.
Flakes of chert resembling arrow heads.
Axe head of copper near the Baragunda copper mine, Hazaribagh district, South-West Bengal.
Four cores of dark chert from Patpad, Banganapalle, Kurnool district.
Core from foot of Daraji hill, Bellary district.
Core from foot of Iddapinkal, Gooty taluk, Anantapur district.
Cores from foot of Yalapadagu, Gooty taluk, Anantapur district.
Four cores (1 agate, 3 chert) from Jabalpur.
Cores from under the "Teri," Sawyerpuram, Tinnevelly district.
Core from a gravel bed south of Mana Madura, Madura district, made of chert much withered.
Ten cores of chert and agate from Hallakota hill, Siruguppa, Bellary district.
Armlet of copper, near the Baragunda copper mine, Hazaribagh district, South-West Bengal.
Cores of chert, Roh, on the Indus, Sind.
Iron implements found buried in a pot with other antiquities, Patpad, Banganapalle, Kurnool district.
Eight celts in first stage from a manufactory on a basaltic trap dyke 20 miles north-west of Tirupatúr, Salem district, badly shaped specimens, probably rejected.

MADRAS,
4th July 1888.

(Signed) EDGAR THURSTON,
Superintendent, Government Central Museum.

From EDGAR THURSTON, Esq., Superintendent, Government Central Museum, to the Secretary to Government, Revenue Department, dated Madras, 27th August 1888, No. 527.

With reference to your official memorandum No. 90, of 8th August 1888, I have the honor to forward, herewith, a classified list of expenditure of the Government Central Museum, during the year 1887-88, to accompany my annual report on the working of the institution.

ENCLOSURE.

CLASSIFIED List of Expenditure of the Government Central Museum, during the year 1887-88.

No. 1887-88.		Actuals, 1887-88.			Revised estimate, 1887-88.		
		RS.	A.	A.	RS.	A.	P.
1	Superintendent, Rs. 500—50—800 ...	6,800	0	0	6,800	0	0
4	Clerks, between Rs. 50 and 200 ...	3,705	0	0	3,720	0	0
5	Do. below Rs. 50	1,608	0	0	1,608	0	0
4	Servants	612	0	0	612	0	0
	Total, Establishment ...	5,925	0	0	5,940	0	0
	Travelling allowance ...	983	6	8	1,000	0	0

No. 1887-88.		Actuals, 1887-88.			Revised estimate, 1887-88.		
		Rs.	A.	P.	Rs.	A.	P.
	Supplies and Services.						
	Cost of specimens	1,055	9	0	1,000	0	0
	Preparation of fittings, furniture, for the collections	2,700	0	0	3,000	0	0
	Cost of European stores	1,186	5	4	...		
	Total ...	4,941	14	4	4,000	0	0
	Cost of books and publications	1,800	0	0	1,800	0	0
	Contingencies.						
	Purchase and repair of furniture ...	200	0	0	200	0	0
	Binding books	300	0	0	300	0	0
	Rents, rates and taxes	1,080	0	0	1,080	0	0
	Postal charges, Telegram charges, Office expenses and miscellaneous ...	4,605	4	2	4,541	0	0
	Total ...	6,185	4	2	6,121	0	0
	Grand Total ...	26,635	9	2	25,661	0	0

ORDER—dated 11th October 1888, No. 703, Revenue.

Miscellaneous.

His Excellency the Governor in Council has read this report with interest and considers that satisfactory progress was made during the year.

2. The number of visitors to the Museum shows an increase over the previous year, but there was a falling off in attendance as compared with 1885-86. The largest number of visitors in any one month was 47,139 during December 1887 against 26,248 in the corresponding period of 1886-87. The increase in the number of Gosha visitors is noted with satisfaction.

3. The charges during the year amounted to Rs. 26,636 against the revised estimate of Rs. 26,000, not 25,661 as stated by the Superintendent. The expenditure in 1886-87 was Rs. 25,039.

4. The estimate for conversion of one of the godowns into a water-pandal, referred to in paragraph 2 of the report, has already been sanctioned and orders issued for the early execution of the work (G.O., dated 3rd September 1888, No. 5221).

5. In conclusion, His Excellency in Council desires to express his acknowledgments to the various gentlemen who contributed to the Museum.

(True Extract.)

(Signed) C. A. GALTON,
Ag. Secretary to Government.

To the Superintendent, Central Museum.
„ the Public Works Department.
„ the Commissioner of Revenue Settlement and Director of the Department of Land Records and Agriculture.
„ Surgeon-General G. Bidie, M.B., C.I.E.
„ the Government Botanist.

Exd. P. L. Pereira.

180 Copies.

Govt. of {1888} Madras.

REVENUE.

Issued

Recd. *Encl.*

G.O., 11th October 1888, No. 703.

OCTOBER.

Government Central Museum.

Reviewing the report of the — for 1887-88.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following paper:—

From EDGAR THURSTON, Esq., Superintendent, Government Central Museum, to the Secretary to Government, Revenue Department, dated Madras, 5th July 1889, No. 448:—

I have the honor to submit to the Right Honorable the Governor in Council my report on the working of the Government Central Museum during 1888-89, and, as it contains a large number of technical terms, I shall be glad to be furnished with a proof of the same before striking off. I also request that I may be supplied with 150 copies for distribution to other Museums, &c.

ADMINISTRATION REPORT OF THE GOVERNMENT CENTRAL MUSEUM FOR THE YEAR 1888-89.

1. INTRODUCTORY.—I was absent from head-quarters during a great part of the year, being on tour at Pámban in July and August; on leave to Europe from September to January, during which time Captain Tufnell was deputed to act for me; at Tuticorin, where I was engaged in investigating the pearl fishery, during February and March; and lastly being sent by Government to report on the Ceylon pearl fishery just before the close of the official year.

During my residence in England I was mainly occupied in working out a portion of the collections (corals, mollusca, &c.), which I have made, from time to time, in the Gulf of Manaar, at the British Museum (Natural History); and the Madras Museum is indebted more especially to Dr. Günther, Professor Jeffrey Bell, and Mr. Edgar Smith, for the willing assistance which they rendered, thereby enabling me to accomplish a large amount of work in a short space of time.

2. VISITORS TO THE MUSEUM.—The usual statistical returns of the number of visitors to the Museum during the year are given in Appendix C. The total number was 337,801 against 264,182 in 1887-88, being an increase of 73,619. As usual a large number of people were visitors during December and January, and in March there was an exceptionally large number of visitors, many of whom came to see the large shark (*Rhinodon*) which was brought on shore in Madras, and acquired for the Museum.

The number of Gosha visitors was 1,779 against 1,811 in 1887-88, being a decrease of 32.

The following statement shows the number of visitors to the Museum during the last five years, and gives an annual average of 286,688:—

1884-85	272,968
1885-86	311,462
1886-87	233,028
1887-88	264,182
1888-89	337,801

Taking the total number of visitors (337,801) and the actuals (Rs. 26,350) for the year, the total cost per visitor will be seen to be between 1 and 2 annas.

Their Highnesses the Maharajah and Maharanee of Mysore visited the Museum during their residence in Madras, and special measures were taken to ensure their examining it with comfort, and free from intrusion.

3. BUILDINGS.—The main building was undergoing general repairs at the end of the year. The floors of the galleries of Antiquities and Natural History were covered

over with cement in a manner of which I do not approve, a very rough and untidy surface being produced. The oozing and crumbling of the pillars in the main hall continued, in spite of the measures taken by the Public Works Department.

The water-pandal, referred to in paragraph 2 of my last report, has been completed, and will shortly be opened.

Preparations were made for the fitting of lightning-conductors, as sanctioned in G.O., No. 1946 W., dated 8th August 1881.

The *porte-cochère* was erected in front of the Superintendent's house, and the Head Taxidermist's quarters underwent repair.

4. ESTABLISHMENT.—The only change in the establishment was caused by the retirement of the Head Humal after a service of thirty years, in consequence of the advancing feebleness of age.

A taxidermist from the Trivandrum Museum went through a course of training in the stuffing-room, during a period of nearly five months.

5. HERBARIUM.—The Herbarium-keeper, who was on privilege leave at the end of the year, poisoned and mounted 200 plants and 100 grasses. A collection of oil-seeds was named, and a manuscript catalogue of grains prepared.

The specimens in the Herbarium illustrative of natural orders *Caprifoliaceæ*, *Scrofulariaceæ* (Hooker, Flor. Brit. Ind., Vols. III, IV) were re-arranged.

A collection of forest wood specimens, presented by Mr. J. S. Gamble, Conservator of Forests, was labelled and exhibited.

A set of the late Mr. Ferguson's Marine *Algæ* (sea-weeds) from Ceylon and Tuticorin, acquired in England, was presented to the Museum by myself, and will be very useful for reference, when Mr. G. Murray's monograph of the *Algæ* of the East Indian Seas is published. Specimens of *Algæ*, collected in the neighbourhood of the pearl banks, were preserved in alcohol, and sent to Mr. Murray.

6. ARTIST.—The Artist was, for the most part, engaged in making painted copies of birds of South India, which will be framed and placed in the bird gallery.

A temporary artist was engaged for a short time in drawing coins of the East India Company.

7. ART GALLERY.—A pair of handsome doors of beaten copper, made at the Madras School of Art, were fixed at the entrance of this gallery. A selection from the large collection of Tanjore arms was arranged in new cases; and some of the jewelry returned from the Indo-Colonial Exhibition, and a representative collection of peasant jewelry arranged, so far as possible, according to districts were also exhibited.

8 PUBLICATIONS.—The catalogue of Batrachians (Frogs, Toads and Cœcilians) of South India was issued early in the year, and the history of the coinage of the East India Company was in the Government Press at the end of the year. Lists of the butterflies of South India, and of the eggs of Indian birds contained in the Madras Museum, were printed for distribution to correspondents.

9. NUMISMATICS.—To the British Museum the Madras Museum is indebted for a donation of casts of some of the coins of the East India Company, which the latter does not possess, and which were very useful to me for reference. Many coins were as usual acquired during the year. A complete list of these coins is given in Appendix A. Among the most interesting of these are—

(1) A rare Fanam of Haidar Ali.*
(2) Lead Indo-Portuguese coin, bearing the coat-of-arms and a cross.
(3) A collection of the coins of the Danish East India Company.
(4) A silver piece, corresponding to one of the types of gold Ráma Tanka.
(5) A zodiac Mohur (Pisces).
(6) Didrachmas of Strato, Azes, and Hermæus.
(7) A gold Kanauj issue of Muhammad Ibn Sám.

A number of Moghul and other coins were received through the Bombay Branch of the Royal Asiatic Society.

10. MINERALOGY AND GEOLOGY.—The gallery on the ground floor, which was formerly devoted to stuffed animals and birds, was reorganised, and cases were made, in

* *Vide* Weyl. Münzen und Denkmünzen der Fonroberts' chen Sammlung, No. 3600, p. 229.

which the following series were arranged systematically by Mr. Bosworth Smith, at that time Mineralogist to Government:—

I. Miscellaneous collection of minerals used as gems.
II. Minerals of South India.
III. Economic minerals used in the manufacture of glass, pottery, earthenware, &c.
IV. Ores and products of South India.
V. Miscellaneous collection of ornamental rocks.
VI. Rocks of South India.
VII. Quartz of South India.
VIII. Marbles, serpentine, and lithographic stones of South India.

A manuscript catalogue was also drawn up by Mr. Bosworth Smith, to which I added a note on the meteorites of which the fall in South India has been recorded. This was in the Press at the end of the year.

11. ETHNOLOGY AND ANTIQUITIES.—A marble pillar, bearing an inscription, from Chinna Ganjam, and pottery and other remains from the Madura, Kistna, and Godávari districts, Vellore, and Nellore, were received through Mr. A. Rea of the Archæological Survey.

An old gun, about 9 feet in length, of the history of which nothing is apparently known, was received from the Collector of Cuddapah. A collection of stone implements from South India was sent on loan by Mr. Gompertz of the Revenue Survey, and a collection of the same was presented by Mr. Boys of the Madras Bank. Some iron implements from cromlechs in Mysore were presented through Captain Tufnell.

In the small room adjoining the gallery which contains the Amarávati sculptures, cases were arranged, containing a typical collection of pottery found in various parts of South India* in cairns and cromlechs, a collection of iron implements from Guntakal presented by Mr. C. E. Cardew, and the Museum collection of palæolithic and neolithic implements.

* *Vide* Breeks' Primitive Tribes of the Nílgiris; Report of Tumuli in the Salem District, &c.

The loan collection of stone implements, referred to in my last report, was removed by Mr. Bruce Foote towards the end of the year.

12. NATURAL HISTORY—(*a*) *Sponges.*—A report on a second collection of sponges collected by me in the Gulf of Manaar was published by Mr. Arthur Dendy, now of the University of Melbourne in the Annals and Magazine of Natural History for February 1889. He there writes: "This collection was of even greater interest than the first, and its value was greatly enhanced by the fact that Mr. Thurston had carefully preserved portions of nearly all the species in spirit and had also kept a record of the colors of the sponges in the living state ..... The collection comprises twenty-four determinable species, of which fourteen are new to science, and two represented by new varieties."

The following is a list of the species reported on, with notes of the color during the living state:—

Tetractinellida.

Tetilla hirsuta, n. sp.

Monaxonida.

Petrosia testudinaria (Lamarck sp.) pink.
Reniera madrepora, n. sp.
Pachychalina multiformis (Lendenfeld sp.) var. manaarensis, pale violet or light pink.
Do. delicatula, n. sp.
Do. spinilamella, n. sp., pale yellow.
Siphonochalina communis (Carter sp.) bluish brown.
Do. crassifibra, n. sp., deep blue.
Gelliodes carnosa, n. sp., grey.
Iotrochota baculifera (Ridley), var. flabellata (Dendy), black (in spirit or when dry, dark purple).
Clathria indica, n. sp., bright red.
Do. corallitincta, n. sp., coral red.
Rhaphidoplus spiculosus, n. sp, vermilion.
Hymeniacidon? fœtida, n. sp., grey.

Axinella labyrinthica, n. sp., grey.
Do. donnani (Bowerbank sp.), orange.
Do. tubulata (do.), pinkish red or red.
Ciocalypta tyleri (do.), var. manaarensis nov., white.
Auletta aurantiaca, n. sp., orange.
Acanthella carteri, n. sp., orange red.

Ceratosa.

Spongionella nigra, n. sp., black.
Hircinia clathrata (Carter), reddish brown.
Do. ? sp., blackish grey.
Aplysina purpurea (Carter), grey (in spirit or dry, dark purple).
Do. fusca (Carter).

A fine specimen of the large cup-shaped Petrosia testudinaria, which was also found by Dr. Anderson in the Mergui Archipelago, was placed in the marine gallery.

(*b*) *Corals.*—The bulk of my collection of corals from the Gulf of Manaar was taken to the British Museum (Natural History) where a large number of species were identified, some of which I exhibited at the November meeting of the Zoological Society.

(*c*) *Echinoderms.*—A report on the Echinoderms collected by me in the Gulf of Manaar was published by Professor F. Jeffrey Bell in the Proceedings of the Zoological Society of London, June 19, 1888. To the species there recorded, several, which I afterwards obtained at Pámban last year, have since been added, bringing up the list of species from the Gulf of Manaar to 54.

The following species from the above locality were placed (dry or in spirit) in the marine gallery :—

Crinoidea.
Antedon reynaudi.
Actinometra parvicirra.

Asteroidea.
Echinaster purpureus.
Linckia lævigata.
Anthenea pentagonula.
Goniodiscus granuliferus.
Oreaster lincki.
Do. thurstoni, n. sp.
Astropecten hemprichii.

Ophiuroidea.
Pectinura gorgonia.
Do. intermedia, n. sp.
Ophiomaza cacaotica.

Echinoidea.
Temnopleurus toreumaticus.
Temnopleuroid.
Salmacis bicolor.
Stomopneustes variolaris.
Clypeaster humilis.
Laganum decagonale.
Echinolampas oviformis.
Lovenia elongata.

Holothuroidea.
Colochirus quadrangularis.
Haplodactyla australis.
Holothuria atra.
Do. marmorata.
Do. monacaria.
Do. vagabunda.

(*d*) *Crustacea.*—The following species were placed in the marine gallery :—

Chelonobia testudinaria (Found living on back of Edible Turtle).	
Grapsus strigosus	Madras.
Matuta miersii	Do.
Neptunus pelagicus	Do.
Clibanarius, sp.	Do.
Palinurus dasypus	Do.
Philyra globulosa	Do.
Scylla serrata	Do.
Squilla raphidea	Do.
Thelphusa sp. (Land Crab)	Nílgiris.

(*e*) *Insecta.*—Specimens of insects destructive to crops were received, from time to time, from various districts of the Presidency, and sent to the Indian Museum, Calcutta, for identification. A supply of London purple (one of the coal-tar products), received from the Indian Museum, together with an American force pump, was forwarded, through the Board of Revenue, to the Collector of Ganjam for trial as an insecticide on castor-oil plants affected by an insect (*Achœa melicerte*).

Under G.O., Revenue, No. 1777, dated 15th March 1888, the Museum was made the central depôt for the reception and transmission to the Forest School at Dehra Dun of collections of insects injurious to forest trees, made by Forest officers at the suggestion

of the Inspector-General of Forests; and a dozen sets of collecting apparatus were supplied to the Forest Department.

On a representation, made by Dr. Balfour to the Board of Revenue, that there are no specimens of Indian locusts in the British Museum, and that the species which inhabit the country are not well known, Collectors of districts were instructed to collect specimens for the Museum for transmission to the British Museum.

A collection, illustrative of Indian sericulture, was purchased from the Indian Museum, and exhibited.

To Mr. Hampson, Lieutenant Watson, and Mr. Lindsay, the Museum is indebted for many specimens of South Indian Lepidoptera. The following butterflies, collected for the most part on the Nílgiris, were exhibited during the year. The numbers correspond to those of Mr. Hampson's monograph in the Journal, Asiatic Society, Bengal, 1888. Many gaps remain to be filled up, and the collection is specially deficient in Hesperidæ:—

Family Nymphalidæ.

1.	Hestia malabarica	Moore.
2.	Danais limniace	Cramer.
3.	Do. septentrionis	Butler.
4.	Do. chrysippus	Linné.
5.	Do. genutia	Cramer.
6.	Do. aglea	Do.
7.	Do. nilgiriensis	Moore.
8.	Pademma kollari	Felder.
9.	Euplœa core	Cramer.
10.	Do. coreoides	Moore.
11.	Mycalesis anaxias	Hewitson.
12.	Do. mandata	Moore.
13.	Do. blasius *	Fabricius.
14.	Do. mineus	Linné.
15.	Do. adolphei	Guérin.
16.	Do. junonia	Butler.
16.	Do. oculus	Marshall.
17.	Lethe europa	Fabricius.
18.	Do. todara	Moore.
19.	Do. neelgherriensis	Guérin.
	Yphthima philomela	Johannsen.
23.	Do. huebneri	Kirby.
24.	Do. ceylonica	Hewitson.
25.	Do. chenui	Guérin.
	Do. yphthimoides	Moore.
27.	Zipœtes saitis	Hewitson.
28.	Melanitis aswa	Moore.
28.	Do. tambra †	Do.
30.	Do. leda	Linné.
32.	Elymnias caudata	Butler.
34.	Telchinia violæ	Fabricius.
35.	Ergolis merione	Cramer.
36.	Do. taprobana	Westwood.
37.	Do. ariadne	Linné.
38.	Byblia ilithyia	Drury.
39.	Euripus consimilis	Westwood.
40.	Cupha erymanthis	Drury.
41.	Atella phalanta	Do.
42.	Cethosia mahratta	Moore.
43.	Cynthia saloma	Swinhoe.
44.	Apatura camiba	Moore.
45.	Precis iphita	Cramer.
	Junonia asterie	Linné.
46.	Do. almana	Do.
47.	Do. atlites	Do.
48.	Do. lemonias	Do.
49.	Do. hierta	Fabricius.
50.	Do. orithyia	Linné.

* Wet season form of *M. parseus*—(Hampson).
† Dry season form of *M. aswa*—(Hampson).

51.	Neptis hordonia	Stoll.
51.	Do. plagiosa*	Moore.
52.	Do. viraja ..	Do.
53.	Do. varmona	Do.
53.	Do. eurymene †	Butler.
58.	Do. jumbah	Moore.
60.	Cirrhochroa thais	Fabricius.
62.	Hypolimnas boline	Linné
63.	Do. misippus	Do.
64.	Argynnis niphe	Do.
65.	Parthenos virens	Moore.
66.	Limenitis procris	Cramer.
67.	Athyma perius	Linné.
69.	Do. selenophora	Kollar.
70.	Do. inarina	Butler.
71.	Symphædra nais	Forster.
72.	Euthalia evelina	Stoll.
73.	Do. lepidea	Butler.
74.	Do. garuda	Moore.
75.	Do. lubentina	Cramer.
76.	Pyrameis cardui	Linné.
77.	Do. indica	Herbst.
78.	Vanessa canace	Linné.
79.	Cyrestis thyodamas	Boisduval.
80.	Kallima wardi	Moore.
81.	Charaxes athamas	Drury.
82.	Do. fabius	Fabricius.
83.	Do. imna	Butler.

Family Lemoniidæ.

84.	Libythea myrrha	Godart.
85.	Abisara suffusa	Moore.

Family Lycænidæ.

88.	Neopithecus zalmora	Butler.
89.	Megisba thwaitesi	Moore.
90.	Curetis thetys	Drury.
92.	Cyaniris albidisca	Moore.
93.	Do. limbatus	Do.
	Do. lavendularis	Do.
94.	Do. akasa	Horsfield.
	Zizera karsandra	Do.
98.	Do. pygmæa	Snellin.
100.	Do. ossa	Swinhoe.
103.	Tarucus plinius	Fabricius.
105.	Castalius decidea (form interruptus)‡	Moore.
106.	Do. rosimon	Fabricius.
107.	Do. ethion	D. and Hewitson.
109.	Everes parhasius	Fabricius.
110.	Jamides bochus	Cramer.
111.	Lycænesthes lycænina	Felder.
112.	Nacaduba prominens	Moore.
114.	Do. viola	Do.
116.	Do. dana	deNicéville.
115.	Do. ardates	Moore.
117.	Do. hampsoni	deNicéville.
118.	Catochrysops strabo	Fabricius.
119.	Do. cnejus	Do.
120.	Polyommatus bæticus	Linné.
121.	Lampides ælianus	Fabricius.
122.	Do. elpis	Godart.
123.	Talicada nyseus	Guérin.
124.	Cetapæcilma elegans	Druce.
125.	Horaga onyx	Hewitson.

* Dry season form of *N. hordonia*—(Hampson).
† Do. do. of *N. varmona*—(Do.)
‡ *C. decidea*, wet season form; *C. interruptus*, dry season form—(Hampson).

127.	Sithon indra	Moore.
128.	Rathinda amor	Fabricius.
130.	Deudorix epijarbas	Moore.
133.	Baspa melampus	Cramer.
136.	Rapala lazulina	Moore.
137.	Do. schistacea	Do.
139.	Spindasis vulcanus	Fabricius.
146.	Tajuria longinus	Do.
151.	Loxura atymnus	Cramer.
152.	Do. surya	Moore.
153.	Bindhara sugriva	Horsfield.
154.	Surendra todara	Moore.
155.	Amblypodia naradoides	Do.

Family Papilionidæ.

157.	Leptosia xiphia	Fabricius.
158.	Terias hecabe	Linné.
	Form *hecabeoides*	Ménétriés.
	Do. *excavata*	Moore.
	Do. *purrea*	Do.
159.	Terias lybethea	Fabricius.
	Form *drona*	Horsfield.
	Do. *rubella*	Wallace.
	Do. *venata*	Moore.
161.	Catopsilia catilla	Cramer.
162.	Do. crocale	Do.
163.	Do. gnoma	Fabricius.
163.	Do. ilea *	Do.
164.	Do. pyranthe	Do.
165.	Ixias pyrene	Linné.
166.	Do. pyrenassa	Wallace.
167.	Do. meridionalis	Swinhoe.
169.	Hebomoia glaucippe	Linné.
170.	Collosune eucharis	Fabricius.
172.	Do. danæ	Do.
173.	Idmais amata	Do.
175.	Colias nilagiriensis	Felder.
	Mancipium canidia	Sparrman.
177.	Catophaga wardi	Moore.
178.	Do. paulina	Cramer.
180.	Do. galena	Felder.
181.	Do. lankapura	Moore.
183.	Appias libythea	Fabricius.
185.	Huphina phryne	Do.
185.	Do. cassida †	Do.
187.	Do. remba	Moore.
188.	Belenois mesentina	Cramer.
	Form auriginea	Butler.
189.	Mepheronea fraterna	Moore.
	Form *ceylonica*	Felder.
191.	Nepheronea gœa	Do.
192.	Delias eucharis	Drury.
193.	Papilio minos	Cramer.
194.	Do. dissimilis	Linné.
195.	Do. clytia	Do.
198.	Do. hector	Do.
199.	Do. aristolochiæ	Fabricius.
200.	Do. erithonius	Cramer.
201.	Do. pammon	Linné.
202.	Do. daksha	Moore.
203.	Do. crino	Fabricius.
204.	Do. buddah	Westwood.
205.	Do. tamilana	Moore.
206.	Do. polymnestor	Cramer.
207.	Do. nomius ‡	Esper.

Form of C. gnoma—(Hampson).
Dry season form of *H. phryne*—(Hampson).
A single specimen found by me on the Coonoor Ghât in a forest plantation (1,000 feet), February 1888.

208.	Papilio teredon	Felder.
210.	Do. doson	Do.
211.	Do. agamemnon	Linné.

Family Hesperidæ.

213.	Badamia exclamationis	Fabricius.
214.	Choaspes benjamini	Guérin.
217.	Parata chromus	Cramer.
218.	Do. alexis	Fabricius.
220.	Baracus subditus	Moore.
222.	Astictopterus stellifer	Butler.
226.	Parnara kumara	Moore.
229.	Do. bevani	Do.
234.	Chapra mathias	Fabricius.
236.	Do. prominens	Moore.
245.	Taractrocera mævius	Fabricius.
248.	Halpe ceylonica	Moore.
253.	Isoteinon nilgiriana	Do.
258.	Tagiades atticus	Fabricius.
260.	Plesioneura leucocera	Kollar.
264.	Do. alysos	Moore.
265.	Do. restricta	Do.
267.	Udaspes folus	Cramer.
268.	Coladenia dan	Fabricius.
270.	Abarantha ransonnetii	Felder.
272.	Tapena thwaitesi	Moore.
273.	Antigonus angulata	Felder.

(*f*) *Mollusca.*—The greater part of the collection of mollusca, made by me during my tours round the coast of the Presidency, was taken to Europe for purposes of identification.

(*g*) *Fishes.*—A specimen of *Serranus gigas* was caught off the Madras harbour, and was purchased by the Museum. Considerable excitement was caused in February by the casting on shore of a specimen of *Rhinodon*, measuring over 20 feet in length. Two specimens of *R. typicus*, which is figured in Smith's Illustrations of the Zoology of South Africa, have been obtained off the coast of Ceylon, of which one is preserved in the Colombo Museum.

Unfortunately I was away from Madras at the time of the arrival of the Madras specimen, which has been stuffed, so that the opportunity was lost of examining its visceral anatomy, stomach contents, &c. The specimen recorded by Dr. A. Smith (l-*c.*) is described as having been "the only one that had been seen at the Cape within the memory of any of the fishermen. At the time it was discovered, it was swimming leisurely near the surface of the water, and with a certain portion of the back above it. When approached, it manifested no great degree of fear, and it was not before a harpoon was lodged in its body that it altered its course and quickened its pace." A small collection of fishes was sent to Mr. Francis Day, who was at that time preparing his "Supplement to the Fishes of India," and three new species were described from it, viz., Cepola indica, Apogon thurstoni, and Gobius thurstoni.

The following species were returned by Mr. Day :—

Serranus latifasciatus.	Cepola indica.
Lutjanus annularis.	Upeneoides vittatus.
Diagramma cuvieri.	Salarias marmoratus.
Do. griseum.	Glyphidodon sordidus.
Acanthurus velifer.	Cheilinus chlorurus.
Boleophthalmus boddærti.	Tetrodon hispidus.

The following species were mounted during the year :—

Embryo Carcharias	Madras.
Rhinodon	Do.
Serranus gigas	Do.
Do. latifasciatus	Pámban.
Lutianus annularis.	
Diagramma cuvieri	Tuticorin.

Scorpæna sp.	Madras.
Nandus marmoratus	Do.
Histiophorus maculatus	Do.
Acanthurus velifer	Pámban.
Caranx gallus	Madras.
Boleophthalmus boddærti	Pámban.
Cepola indica	Vizagapatam.
Anabas scandens (climbing Perch)	Madras.
Glyphidodon sordidus	Pámban.
Cheilinus chlorurus	Do.
Rita pavimentata	Do.
Barbus filamentosus	Madras.
Chela argentea	Do.
Muræna tessellata	Do.
Anguilla bicolor	Do.
Hippocampus trimaculatus	Mangalore.
Tetrodon hispidus	Tuticorin.

(*h*) *Birds.*—On the departure of Mr. Davison for Singapore I was appointed to take his place as Madras correspondent to the International Ornithological Committee, and specimens of birds killed by striking against light-houses were ordered to be sent to me.

The following is a list of the birds obtained during my tour on the Nílgiris in January—March 1888, during which the neighbourhood of Coonoor, Kótagiri and Ootacamund, Naduvatam, the Kundas, Karkoor, Seegoor and Coonoor ghâts were shot over :—

17.	Tinnunculus alaudarius	Kestril.
51.	Circus swainsonii	Pale harrier.
54.	Do. æruginosus	Marsh harrier.
56.	Milvus govinda	Pariah kite.
83.	Hirundo domicola	Nílgiri house swallow.
85.	Do. daurica	Red-rumped swallow.
117.	Merops viridis	Indian bee-eater.
119.	Do. quinticolor	Chestnut-headed bee-eater.
122.	Nyctiornis athertoni	Blue-necked bee-eater.
123.	Coracias indica	Indian roller.
129.	Halcyon fuscus	White-breasted king-fisher.
149.	Palæornis rosa	Rose-headed parrakeet.
151.	Do. columboides	Blue-winged parrakeet.
166.	Chrysocolaptes sultaneus	Golden-backed wood-pecker.
175.	Chrysophlegma chlorophanes	Southern yellow-naped wood-pecker.
193.	Megalaima caniceps	Green barbet.
197.	Xantholæma indica	Crimson-breasted barbet.
205.	Hierococcyx varius	Hawk-cuckoo.
208.	Polyphasia nigra	Plaintive cuckoo.
216.	Zantlostomus viridirostris	Small green-billed malkoha.
217.	Centropus rufipennis	Common coucal.
232.	Leptocoma zeylonica	Amethyst-rumped honey-sucker.
234.	Arachnechthra asiatica	Purple honey-sucker.
253.	Dendrophila frontalis	Velvet-fronted blue nut-hatch.
255.	Upupa nigripennis	Indian hoopoe.
257.	Lanius erythronotus	Rufous-backed shrike.
260.	Do. hardwickii	Bay-backed shrike.
261.	Do. cristatus	Brown shrike.
264.	Tephrodornis sylvicola	Malabar wood shrike.
265.	Do. pondiceriana	Common wood shrike.
268.	Volvocivora sykesii	Black-headed cuckoo-shrike.
272.	Pericrocotus flammeus	Orange minivet.
276.	Pericrocotus peregrinus	Small minivet.
278.	Dicrurus macrocercus	Drongo shrike.
281.	Do. cærulescens	White-bellied drongo.
282.	Chaptia ænea	Bronzed drongo.
285.	Edolius malabaricus	Malabar racket-tailed drongo.
288.	Tchitrea paradisi	Paradise flycatcher.
290.	Myiagra azurea	Black-naped blue flycatcher.
292.	Leucocerca albofrontata	White-browed fantail.
295.	Cryptolopha cinereocapilla	Grey-headed flycatcher.
297.	Alseonax latirostris	Southern brown flycatcher.

302.	Eumyias albicaudata	Nílgiri blue flycatcher.
305.	Cyornis banyumas	Horsfield's blue red-breast.
339.	Callene rufiventris	Rufous-bellied shortwing.
342.	Myiophonus horsfieldii	Malabar whistling thrush.
351.	Petrocossyphus cyaneus	Blue rock thrush
353.	Orocetes cinclorhynchus	Blue-headed chat thrush.
354.	Geocichla cyanotus	White-winged ground thrush.
360.	Merula simillima	Nílgiri black-bird.
389.	Alcippe poiocephala	Nílgiri quaker thrush.
404.	Pomatorhinus horsfieldii	Southern scimitar babbler.
423.	Trochalopteron cachinnans	Nílgiri laughing thrush.
434.	Malacocircus malabaricus	Jungle babbler.
450.	Criniger ictericus	Yellow-browed bulbul.
460.	Otocompsa jocosa	Red-wishkered bulbul.
462.	Pycnonotus hæmochous	Madras bulbul.
465.	Phyllornis aurifrons	Gold-fronted green bulbul.
467.	Iora zeylonica	Black-headed green bulbul.
469.	Irena puella	Fairy blue-bird.
475.	Copsychus saularis	Magpie robin.
481.	Pratincola caprata	White-winged black robin.
507.	Larvivora cyana	Blue wood-chat.
592.	Calobates sulphurea	Grey and yellow wagtail.
631.	Zosterops palpebrosus	White-eyed tit.
645.	Parus cinereus	Indian grey tit.
660.	Corvus culminatus	Indian corby.
674.	Dendrocitta rufa	Indian magpie.
678.	Do. leucogastra	Long-tailed magpie.
684.	Acridotheres tristis	Common myna.
686.	Do. fuscus	
687.	Temenuchus pagodarum	Black-headed myna.
688.	Do. malabaricus	Grey-headed myna.
703.	Munia malabarica	Plain brown myna.
704.	Estrelda amandava	Red wax-bill.
706.	Passer indicus	House sparrow.
711.	Do. flavicollis	Yellow-necked sparrow.
738.	Carpodacus erythrinus	Common rose finch.
767.	Alauda gulgula	Indian skylark.
786.	Palumbus elphinstonei	Nílgiri-wood pigeon.
795.	Turtur suratensis	Spotted dove.
813.	Gallus sonneratii	Grey jungle fowl.
814.	Galloperdix spadiceus	Red spur fowl.
828.	Perdicula erythrorhyncha	Painted bush quail.
856.	Sarciophorus bilobus	Yellow-wattled lapwing.
870.	Gallinago stenura	Pin-tailed snipe.
930.	Ardeola leucoptera	Pond heron.

The names in the above list correspond to those in Jerdon's 'Birds of India.' A list of Nílgiri birds will be found in the Manual of the Nílgiri District, and in a paper read before the Nílgiri Natural History Society by Mr. W. Davison, since published, a most interesting account of some of the migratory birds of the Nílgiris is given.

(*i*) *Eggs of Indian Birds.*—The following eggs were added to the collection, many of them presented by Mr. W. Mahon Daly, during the year:—

69.	Urrua bengalensis	Rock-horned owl.
77.	Athene radiata	Jungle owlet.
100.	Cypselus affinis	Indian swift.
118.	Merops philippensis	Blue-tailed bee-eater.
157.	Picus macei	Indian spotted wood-pecker.
193.	Megalaima caniceps	Green barbet.
197.	Xantholæma indica	Crimson-breasted barbet.
212.	Coccystes melano leucos	Pied-crested cuckoo.
306.	Cyornis tickelliæ	Tickell's blue red-breast.
404.	Pomatorhinus horsfieldii	Southern scimitar babbler.
479.	Thamnobia fulicita	Indian black robin.
526.	Horornis fortipes	Strong-footed hill warbler.
589.	Motacilla maderaspatana	Pied wagtail.
673.	Cissa sinensis	Green jay.
758.	Ammomanes phænicura	Rufous-tailed finch lark.

812.	Gallus ferrugineus	Red jungle fowl.
905.	Gallinula chloropus	Water hen.
924.	Ardea purpurea	Purple heron.
931.	Butorides javanica	Little green heron.
934.	Ardetta sinensis	Yellow bittern.
937.	Nycticorax griseus	Night heron.
944.	Phœnicopterus roseus	Flamingo.

(*k*) *Mammals.*—Various animals which died during the year at the People's Park were presented to the Museum through the President of the Municipality, and included a Tasmanian wolf, leopard, sloth-bear, hyæna, and sambur.

A series of skulls and skeletons was prepared in illustration of the osteology of the mammals of Southern India.

The elephant skeleton, referred to in my last report, was set up in the front hall of the Museum. Concerning this skeleton a statement, subsequently copied in 'Nature,' was made in the papers that "the Madras Museum now possesses the skeleton of the largest elephant ever killed in India. The skeleton is exactly 10 feet 6 inches in height, being 8 inches larger than the biggest measured in the flesh by Mr. Sanderson." But as mentioned by the 'Asian,' Mr. Sanderson gave 10 feet $7\frac{1}{2}$ inches as the largest elephant he had met, and there is a still larger one in the Indian Museum, Calcutta.

13. LIBRARY.—The total number of visitors to the library was 6,568. The following is a summary of the additions to the library during the year (*vide* appendix D):—

Presented by Government	119
Presented privately	59
Purchased	75
British Museum Publications	7
Patent Office Papers	74
Trübner's Oriental Series	6
Periodicals	427
Records and other Publications	12
Parliamentary Blue Books	48

GOVERNMENT CENTRAL MUSEUM,
EGMORE,
Madras, 5th July 1889.

(Signed) EDGAR THURSTON,
Supdt., Govt. Central Museum.

APPENDICES.

A.

COINS ACQUIRED DURING THE YEAR 1888-89.

Gold, Portuguese Joannes V	Donation.
Zodiac Mohur (Pisces)	Purchase.
Lead and copper coins, and silver Roman Imperial ...	Archæological Survey.
Vír Ráya Fanam	Donation.
Kanouj, Govinda Chandra Déva	Purchase.
Lead, Indo-Portuguese	Exchange.
Rupee, Muhammad Sháh	Bombay Branch, Royal Asiatic Society.
Silver, Persian	Do.
Rupee, Aurungzeeb	Do.
Half Rupee do.	Do.
Rupee, East India Company	Do.
Half Rupee, Sháh Alam	Do.
Rupee do.	Do.
Copper, Muhammad Sháh	Do.
Copper, Ahmed Shah	Do.
Gold hún	Do.
27 Pagodas	Donation.
Pagoda and Fanam, Típú	Purchase.
Gold, Aurungzeeb and Sháh Jehán	Bombay Branch, Royal Asiatic Society.
Silver, Muhammad Ibn Sám	Purchase.

Rupee, Faruksir	Bombay Branch, Royal Asiatic Society.
Gold hún	Do.
Rupee, Sháh Jehán	Do.
Rupee, Muhammad Sháh	Do.
Rupee, Sháh Alam	Do.
Silver, Gadhia coin	Do.
Rupee, Aurungzeeb	Do.
Mohur, Akbar	Do.
Copper dubs	Donation.
Danish East India Company	Exchange.
Andhra lead	Do.
Copper, Ibn Sám	Purchase.
Copper, Samanta Déva	Do.
Copper, Muhammad Ibn Farid	Do.
Copper, Jal-al-ad-din Firoz Sháh	Do.
Copper, Muhammad Ibn Tuglak	Do.
Silver, Shir Sháh	Do.
Silver Rupee, Típú	Do.
Silver, Jal-al-ad-din Muhammad	Do.
Silver, Firoz Sháh with Fath Khan	Do.
Farokhi Pagoda	Do.
Rupees, Típú	Do.
Copper, Mysore	Do.
Silver coin corresponding to Ráma Tanka	Do.
Didrachma, Azes	Do.
Copper, Mysore	Do.
Rupees, Típú	Do.
Farokhi Pagoda	Donation.
Copper coins from Kílakarai	Do.
Rupee, Ghiyas-ad-din Azam Sháh	Purchase.
Billon, Azes	Do.
Copper, Abkar	Do.
Silver, Early Arakan	Do.
Silver, Parthian, Tiridates and Pacores II	Do.
Silver, Sikandar Sháh	Do.
Silver, Jehangir	Do.
Danish East India Company	Do.
Kanouj, Muhammad Ibn Sám	Do.
Copper, Mysore	Exchange.
Punch marked Buddhist	Donation.
Copper, English East India Company	Purchase.
Didrachmas, Strato and Hermæus	Do.

B.

GENERAL LIST OF THE CONTRIBUTIONS, &C., RECEIVED FOR THE GOVERNMENT CENTRAL MUSEUM FROM 1ST APRIL 1888 TO 31ST MARCH 1889.

	NO.
Arundel, A. T., Esq., Collector, Kistna District—	
Old coins (Billon issues of Ghiyas-ad-din Tuglak)	4
Bannon, Captain A.—	
Monaul Pheasant	1
Benson, R. S., Esq.—	
Crocodile	1
Bidie, Surgeon-General G., M.B., C.I.E.—	
Specimen of gneiss (Madura)	1
Bombay Branch of the Royal Asiatic Society, Bombay—	
Gold coins	3
Gold coin of Aurungzeeb found in Kaira district	1
Do. of do. found in Khandesh district ...	1
Do. of Sháh Jehán found in do. ...	1
Silver coins	16
Copper coins	2
Coins	Collection
Boys, J., Esq., Bank of Madras, Bellary—	
Neolithic implements	Collection.
Burgess, Dr.—	
Coins found at Bezváda	Do.

Cardew, C. E., Esq.—			
Pottery and iron implements from three barrows in Guntakal...	Collection.		
Carter, H. R. P., Esq.—			
South Indian hedge hogs (Erinaceus micropus)	2	NO.	
Bird (Circus swainsonii)	1		
Bird (Do. cineraceus)	1		
Bird (Poliornis teesa)	1	10	
Cobra (Naga tripudians)	1		
Skin of Crocodilus palustris from Calicut	1		
Crocodilus palustris	2		
Fish (Rita pavimentata) from the River Tungabhadra ...	1		
Coimbatore, Collector of—			
Gold Vira Ráya Fanam			1
Commissioner of Police—			
Cobra (Naga tripudians)			1
Cuddapah, Collector of—			
Old native gun			1
Daly, William Mahon, Esq., Yercaud, Shevaroys—			
Shevaroy Batrachians	Collection		
Birds' eggs	10		12
Planarian worms, Myriopoda, and Batrachians	Collection		
Gnanapragasam Pillai, T. A., M.R.Ry.—			
Fresh-water sponge (Spongilla sp.)			1
Ganjam, Collector of—			
Silver coins			12
Hampson, G. F., Esq.—			
Nílgiri Lepidoptera, Reptilia, &c.	Collection.		
Henderson, R. J., Esq.—			
Bird (Tern)	1		2
Ant-eater (Manis pentadactyla)	1		
Hooper, E. D. M., Esq.—			
Spider (Mygale sp.)			1
Jones, J. A., Esq., Madras Municipality—			
Piece of laterite with fossil leaf (?)			1
Khadir Hussain Sahib—			
Cigar			1
Kuppusawmy, M., Chetty, M.R.Ry.—			
Copper coins			2
Kurnool, Collector of—			
Gold pagodas	20		21
Farokhi pagoda of Tipú	1		
Lindsay, A., Esq.—			
South Indian butterflies	20		128
Moths	108		
Malabar, Collector of—			
Pottery	Collection.		
Marshall, H. H., Esq., Vepery—			
Coin of Krishna Rája of Mysore	1		4
Copper coins	3		
Michael, Mrs. E. A., Royapettah—			
Shell (Nassa collaris)	1		
Shell (Cytherea impudicas)	1		3
Fruit (Feronia elephantum)	1		
Mitchell, J. M., Esq., Salt Department—			
Snout of saw-fish (Pristis cuspidatus)	1		6
Lizards	5		
Municipal Commission, Madras, President of—			
Spider monkey (Macacus nemestrinus)	1		
The White-handed Macanco (Prosimia albimana)	1		
Tasmanian wolf (Paracyon cynocephalus)	1		
Leopard (Felis pardus)	1		
Bear (Ursus labiatus)	1		
Hyæna (Hyæna striata)	1		12
Sambur (Cervus aristotelis)	1		
Sheep (Ovis aries)	1		
Indian porcupine (Hystrix leucura)	1		
Black swan (Cygnus atratus)	1		
Sea-gull (Xema brunnicephala)	1		
White stork (Ciconia alba)	1		

		NO.
Narayanasawmy Mudaliar, M.R.Ry.—		
Insects		30
Nilakantayya, M.R.Ry., Sheristadar, Koppa taluk, in Mysore—		
Half-pie piece of the Mysore State		1
North Arcot, Collector of—		
Gold coins		2
Partridge, J., Esq., Assistant Engineer, His Highness the Nizam's Department of Public Works—		
Beetle		1
Price, Hon. Mr. J. F.—		
Lizard from the Nílgiris		1
Pryce, Captain Douglas, Ráyapuram—		
Shells		125
Rea, A., Esq., First Assistant, Archæological Survey Department—		
Pottery and bones found in tombs around Madura	Lot	1,016
Do. from the Kistna district	„	
Round tomb from Anapanadi near Madura	1	
Large white marble hands	2	
White Slate Hindu figure from Bezváda	1	
Bricks from Chaitya at Bezváda	Lot	
White marble sculptures from a stûpa at Jilligerigudem near Guntupalle in the Godávari district	8	
White marble naga from a stûpa recently discovered at Bogandanidibba near Pedda Ganjam, Kistna district ...	1	
Fragments of marbles from do. do. ...	Collection	
Small black image of Ganesa from the Vellore temple ..	„	
Base of image with inscriptions from Kanuparti, Nellore district	1	
Small pot found in the Vellore temple	1	
Beads from Kanuparti, Motapalle and Amrávati ...	Collection	
Copper coins found at Pulicat	200	
Do. at Motapalle	400	
Lead and copper coins found at Amrávati	400	
Robinson, W. R., Esq.—		
Loris (young)		1
Scott, T., Esq., Madura—		
Chola Seal, Rája Rája		1
Secretary to the Board of Revenue, Revenue Settlement, Land Records and Agriculture—		
Specimens of soap stones	20	27
Do. of pot stones	6	
Do. illustrative of steel manufacture in the Trichinopoly district	Lot	
Signorina Bartoli, Egmore—		
Monkey (Presbytis priamus)		1
South Canara, Collector of—		
Gold coins		5
Taylor, R. S. M., Esq.—		
Copper coins		5
Tufnell, Captain R. H. C.—		
Iron implements, &c., from Closepet cromlechs ...	Collection	2
Coins of Mysore	1	
Turner, E., Esq., Collector of Madura—		
Coins from Kílakarai		55
Vellums, George, Esq.—		
Scaly ant-eater (Manis pentadactyla)		1
Watson, Lieutenant, Commissariat Department—		
Bat	1	21
South Indian butterflies	19	
Actias selene	1	
Webster, Miss M.—		
Egg (Corvus splendens)		1
White, Mr. W. A. F., Pursewalkum—		
Egg (Motacilla maderaspatana)	1	4
Eggs	2	
Nest of Tailor bird (Orthotomus longicauda)	1	
Wicks, Captain, Port Officer, Negapatam—		
Shark (Stegostoma tigrinum)		1

C.

VISITORS to the Government Central Museum from 1st April 1888 to 31st March 1889.

1888-89.	SIGNATURES MADE IN											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagaree.	Guzerattee.	Canarese.	Chinese.	Singalese.	Malayalam.	Bengalee.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	1,876	362	191	1,351	2	6	25	15	..	..	17	..
May	2,751	596	299	1,946	10	6	16	11	..	..	23	..
June	3,021	460	311	2,455	26	13	20	34	..	..	23	..
July	2,280	543	261	18,27	10	11	28	19	..	..	21	..
August	2,446	596	506	1,985	9	13	42	28	..	..	22	4
September	1,869	450	246	1,551	..	19	19	42	..	..	18	..
October	1,835	443	220	1,527	..	8	22	33	..	2	32	..
November	1,794	497	185	1,498	6	9	28	26	..	3	22	..
December	3,413	747	317	2,958	10	29	75	46	..	10	29	3
January	3,277	683	272	2,353	4	10	68	38	..	6	39	..
February	2,253	558	250	1,691	19	8	50	39	..	..	39	..
March	2,666	335	238	1,402	28	3	41	4	..	..	24	..
Total ..	29,481	6,270	3,296	22,544	124	135	434	335	..	21	309	7

1888-89.	Total of signatures.	Unable to sign, but tally kept.	Total of visitors.	NUMBER OF		Total of visitors.
				Men and boys.	Women and girls.	
	14	15	16	17	18	19
April	3,845	13,086	16,931	10,445	6,486	16,931
May	5,658	19,512	25,170	15,160	10,010	25,170
June	6,363	21,541	27,904	17,206	10,698	27,904
July	5,000	20,219	25,219	14,694	10,525	25,219
August	5,651	20,982	26,633	15,900	10,733	26,633
September	4,214	15,863	20,077	11,574	8,503	20,077
October	4,122	16,339	20,461	11,589	8,872	20,461
November	4,068	14,224	18,292	10,145	8,147	18,292
December	7,637	33,748	41,385	23,167	18,218	41,385
January	6,750	43,322	50,072	25,943	24,129	50,072
February	4,907	22,846	27,753	15,579	12,174	27,753
March	4,741	33,163	37,904	19,347	18,557	37,904
Total ..	62,956	274,845	337,801	190,749	147,052	337,801

D-1.

LIST OF BOOKS ADDED TO THE PUBLIC LIBRARY.

By Purchase (Standard Works).

	Volumes.
Agassiz, A.—Three Cruises of the Steamer "Blake" in the Gulf of Mexico	2
Banerman, H.—Descriptive Mineralogy	1
Do. H.—Systematic do.	1
Beale, S. W.—Oriental Biographical Dictionary	1
Birdwood, Sir G.—The Court Records of the East India Company	1
Curtis.—Botanical Magazine, Vol. 44, for 1888	1
Da Fonseca, J. N.—An Historical and Archæological Sketch of the City of Goa ...	1
Digby, W.—Forty Years in a Crown Colony	2
Durand, T.—Index Generum Phanerogamorum	1
Elliot, R. H.—Experiences of a Planter in the Jungles of Mysore	1
Encyclopædia Britannica, Vols. 23 and 24	2
Figuier, L.—Vegetable World	1
Fisheries Exhibition Literature, Hand-books, Vols. 1 to 3	3
Do. do. Conferences, Vols. 4 to 7	4
Do. do. Prize Essays, Vols. 8 to 11	4

	Volumes.
Fisheries Exhibition Literature, Official Catalogue, Vol. 12	1
Do. do. Official Report and Statistical Tables, Vol. 13 ...	1
Do. do. Analytical Index, Vol. 14	1
Fischer, Dr. P.—Manuel de Conchyliologie, Vols. 1 and 2	2
Forbes, M.—Eleven Years in Ceylon	2
Geike, A —Outlines of Field Geology	1
Holder, C. F.—Living Lights	1
Holdsworth, E. W. H., Sea Fisheries of Great Britain and Ireland	1
Hunt, R.,—British Mining: A treatise on the Metalliferous Mines of the United Kingdom	1
Iconographie der Schalentragenden Europaischen Meeresconchylien, by Kobelt, W. Heft 8	1
Knox, R.—History of Ceylon	1
Lally, Count—Memoirs	1
Le Messurier, Colonel A.—Game, Shore, and Water Birds of India	1
Lewis, T. R.—Physiological and Pathological Researches	1
Lock, A. G.—Gold, its Occurrence and Extraction	1
Lyell, Sir C.—Students' Elements of Geology	1
Neumann.—Beschreibung der bekanntesten Kupfer münzen	6
Paetel, Fr.—Catalog der Conchylien Sammlung	1
Paetel, Fr.—Familien-und Gattungsnamen der Mollusken	1
Phillips, J. A.—Ore Deposits	1
Philosophical Transactions of the Royal Society of London (A) and (B) for the year 1887, Vol. 178	3
Prestwich, J.—Geology, Chemical, Physical, and Stratigraphical	2
Rolleston, G., and Jackson, W. H.—Forms of Animal Life	1
Rutley, F.—The Study of Rocks	1
Salomons, Sir D.—Management of Accumulators	1
Sarasin Paul and Fritz, Forschungen auf Ceylon, Parts 5	5
Sedgwick and Wilson.—Biology	1
Semper, Dr. C.—Reisen in Archipel der Philippinen, Zweiter Theil, Wissenschaftliche Resultate, Heft 16	1
Semper, Dr. C.—Reisen in Archipel der Philippinen, Zweiter Theil, die Tagfalter Rhopalocera	1
Von Cotta, B., and Lawrence, P. H.—Rocks classified and described	1
Weyl, Adolph.—Verzeichniss von Münzen und denkmünzen	1
Wiedersheim, R.—Comparative Anatomy of Vertebrates	1

D-2.

By Purchase (Periodicals).

American Naturalist—Nos. 1 to 12, for 1888.
Annals and Magazine of Natural History—Nos. 3 to 12, for 1888; Nos. 13 to 15, for 1889.
Annales de la Société Entomologique de France—No. 4, for 1887; Nos. 1 to 3, for 1888.
Annales des Sciences Naturelles, Botanique—Vols. 7 and 8, for 1888.
Do. do. Zoologie—Vols. 5 and 6, for 1888.
Asian—Nos. 248 to 274, for 1888-89.
Asylum Press Almanac for the year 1889.
Bulletin de la Société Imperiale de Moscow—Vol. 63, Nos. 1 to 3, for 1887.
Ibis—A Quarterly Journal of Ornithology—Nos. 22 to 24, for 1888; No. 1, for 1889.
Illustrated London News—Vols. 93 and 94, for 1888-89.
Journal of the Royal Asiatic Society of Great Britain and Ireland—Vol. 20, Parts 1 to 3, for 1888.
Journal de Conchyliologie—Vol. 36, Nos. 1 to 4, for 1888.
Journal of the Linnean Society, Botany—Nos. 62 to 64, for 1888; Nos. 65 to 69, for 1889.
Do. do. Zoology—Vol. 20, Nos. 118 to 121, for 1887.
London Times, Weekly Edition—Nos. 585 to 636.
Nature—Nos. 960 to 1012, for 1888-89, Vols. 38 and 39.
Nouvelles Archives du Museum d'Histoire Naturelle—No. 2, for 1887.
Proceedings of the Zoological Society—No. 4, for 1887; Nos. 1 to 3, for 1888.
Quarterly Journal of the Geological Society—Nos. 173 to 176, for 1888; No. 177, for 1889.
Quarterly Journal of Microscopical Science—Vols. 7 to 25, Vol. 19, New Series.
Stray Feathers, by A. O. Hume—Vol. 11, Parts 1 to 4, for 1888.
Transactions of the Entomological Society—Nos. 1 to 5, for 1888.
Do. Linnean Society, Botany—Vol. 3, Part 1, for 1888.

Zeitshrift fur Wissenchaftliche Zoologie	1
Zoological Record for 1887—Vol. 24	1

D-3.

By Gift (Standard Works).

	Volumes.
Blanford, W. T.—The Fauna of British India. Ceylon and Burma, Part 1st	1
Bourke, J. G.—Compilation Notes and Memoranda of Human Ordure and Human Urine	2
Brass and Copper Ware in the Punjab for 1886-87	1
Bulletin of Miscellaneous Information, Kew Gardens, for 1887-88	2
Challenger, H.M.S.—Report on the Scientific Results of the Exploring Voyage (Zoology), Vols. 23 to 28	7
Catalogue of Exhibits by the Government of India, Colonial and Indian Exhibition, 1886.	1
Cotes, E. C.—Notes on Economic Entomology, Nos. 1 and 2	2
Cotes E. C.—Catalogue of the Moths of India, Parts 3 to 5	3
Guide to the Shell and Star Fish in the British Museum	1
Herrington, B. R.—Portfolio Studies from the Ancient Hindu Architecture	1
Heal's Tables of Exchange	1
Hunter, W. W.—England's Work in India	1
Hunter, W. W.—Imperial Gazetteer of India, Vols. 12 to 14	3
India Office List for 1887	1
Jervis, Captain T. B.—Records of Ancient Science	3
Jones, T. R.—Mammalia	1
King, G.—Species of Ficus of the Indo-Malayan and Chinese Countries, Part 2 ...	1
Laurie, W. F. B.—Distinguished Anglo-Indians, Second Series	1
Lendenfeld, R.—Descriptive Catalogue of the Sponges in the Australian Museum, Sydney	1
Lendenfeld, R.—List of Errata in the Catalogue of the Australian Scyphomedusæ and Hydromedusæ, Part 1	1
Löventhal, Rev. E.—The Coins of Tinnevelly	1
Lydekker, R.— Catalogue of Fossil Mammalia in the British Museum, Part 5	1
Lydekker, R.—Catalogue of Fossil Reptilia and Amphibia in the British Museum, Part 5	1
Madan, H. G.—Lessons in Elementary Dynamics	1
Manson, P.—Filaria Sanguinis Hominis	1
Murray, A. S.—Catalogue of Engraved Gems in the British Museum	1
Murray, J.—Avifauna of British India and its Dependencies, Vol. 1, Part 4, for 1887; Vol. 2, Parts 1 and 2, for 1888	3
Natesa Sastri, S. M.—Folklore in Southern India, Parts 1 to 3	3
Ogilby, J. D.—Catalogue of the Fishes in the Australian Museum, Part 1	1
Oliver, D.—First Book of Indian Botany	1
Oza, V. G —Prachin Sodhasangrah	1
Rea, A.—Some Prehistoric Burial Places in Southern India	1
Religious Reform of Vedic Hinduism, Part 3	1
Rien, C.—Catalogue of Turkish Manuscripts in the British Museum	1
Rules and Orders of the Governor-General in Council regulating the conduct of Public Servants in respect to borrowing money, receipt of complimentary addresses and other matters	1
Sanitary Reform in India	1
Sclater, P. L.—Catalogue of Birds in the British Museum, Vol. 14	1
Sharpe, R. B.—Catalogue of Birds in the British Museum, Vol. 12	1
Shortt, J. A.—Monograph on the Cocoanut Palm	1
Smithsonian Report, Part 2, for 1885	1
Tamil Jeevagasindamani	1
Wall, W. S.—History of the Skeleton of a new Sperm Whale	1
Waterhouse, Lieutenant-Colonel B.—Annual Address and Review by the President, Asiatic Society of Bengal	1
Watt, Dr. G.—Report on Indian Fibres and Fibrous Substances	1
Watt, Dr. G.—Selections from the Records of the Government of India, Revenue and Agricultural Department, Vol. 1, Part 1, Nos. 1 to 11; part 2, Nos. 12 to 16 ...	2
Weather Charts of the Arabian Sea and the adjacent portion of the North Indian Ocean	1
Wilson, Colonel W. J.—History of the Madras Army	1

D-4.

Periodicals (By gift).

Electrical Plant, No. 17, for October 1888.
Fort St. George Gazette, Nos. 14 to 50, for 1888; Nos. 1 to 12, for 1889.
Gazette of India, Nos. 13 to 51, for 1888; Nos. 1 to 12, for 1889.
Indian Antiquary, Vol. 17, for 1888, Part 2.

Journal of the Asiatic Society of Bengal, Part 1, Nos. 3 and 4, Part 2, Nos. 3 and 4, for 1887; Part 1, Nos. 1 and 2, Part 2, Nos. 1 to 3, for 1888.
Journal of the Bombay Branch of the Royal Asiatic Society, Vol. 18, Part 1, for 1887.
Journal of Indian Art, Nos. 22 to 25.
Madras Journal of Literature and Science, Part 2, for 1887-88.
Oesterreichische Monatsschrift für den Orient, Nos. 1, 2 and 12, for 1888; Nos. 1 and 2, for 1889.
Proceedings of the Asiatic Society of Bengal, November and December, 1887; January to July, 1888.
Quarterly Journal of Veterinary Science in India, Nos. 23 and 24, for 1887-88.
Records of the Geological Survey of India, Nos. 1 to 4, for 1888.
Statement of Imports and Exports, March to December, 1888; January and February, 1889.
The Pandit: A monthly publication devoted to Sanskrit Literature, Nos. 1 to 12, for 1888.

D-5.

Reports.

	Volumes.
Administration Report of the Colombo Museum for 1887	1
Do. on the Jails of Bengal for 1887	1
Do. on the Bombay Jails for 1887	1
Andamanese and Nicobarese Vocabulary	1
Annual Administration Reports of the Forest Department, Southern and Northern Circles, Madras Presidency, for 1886-87	1
Annual Report on the Administration of Prisons in the Province of Coorg for 1887	1
Annual Report of the Department of Land Records and Agriculture, Bengal, for 1887-88	2
Annual Report of the Department of Land Records and Agriculture, Assam, for 1887-88	2
Annual Report of the Director of Land Records and Agriculture, Bombay Presidency, for 1887-88	2
Annual Report on the Foreign Trade of the North-West Provinces and Oudh for 1888	1
Annual Report of the Khandesh Experimental Farm for 1888	2
Annual Report of the Superintendent, Government Experimental Farm, Hyderabad, Sind for 1887-88	2
Annual Report on the Government Cinchona Plantation and Factory in Bengal for 1887-88	2
Annual Report of the Queensland Museum for 1888	1
Annual Report on the Botanical Gardens at Ghorpuri for 1885-86	1
Annual Report on the Jails of the Hyderabad Assigned Districts for 1887	1
Annual Report and Lists of Accessions, Indian Museum for 1886-87	1
Annual Report on the Royal Botanical Garden, Calcutta, for 1887-88	1
Annual Report on the Lunatic Asylum in the Madras Presidency for 1887	1
Annual Report with Tabular Statements on the Condition and the Management of the Jails, North-West Provinces and Oudh, for 1887	1
Annual List of the Establishments in the Revenue Department of the Madras Presidency for 1888	1
Annual Returns of the Civil Hospitals and Dispensaries in the Madras Presidency for 1887	1
Annual Volume of the Sea-borne Trade and Navigation of the Madras Presidency for 1887-88	1
Catalogue of the Sanskrit Manuscripts in the Library of the India Office, Part 1st	1
Catalogue of the Sanskrit Manuscripts in the Library in Oudh Province for 1887	1
Catalogue of the Collections of Manuscripts deposited in the Deccan College with an Index	1
Catalogue of Sanskrit Manuscripts in the Sanskrit College Library, Benares	1
Charters of the High Court of Judicature at Madras from 1687 to 1865	1
Charters relating to the East India Company from 1600 to 1761	1
Chronological Tables	1
Civil Justice Report of Lower Burma for 1887	1
Civil Statements of the North-Western Provinces for 1887	1
Civil Justice Report for 1887—Errata	1
Cotton Crop of the Punjab for 1887	1
Criminal Justice Report of Lower Burma for 1887	1
Criminal Statements of the North-Western Provinces for 1887	1
Crop Experiments in the Bombay Presidency for 1887-88	1

	Volumes.
District Officers' Reports on the Rice Crop Prospects of Lower Burma for 1889 ...	1
Food-supply in Burma for 1889	1
Indian Chronological Tables	3
Indian Meteorological Memoirs, Vol. 3, Parts 3 and 4; Vol. 4, Part 5	3
Instructions for making Silos and Ensilage	1
Madras Land Revenue Reports for 1885-86	1
Madras Meridian Circle Observations for 1865 to 1867	1
Meteorological Observations recorded at six stations in India for 1888	1
Note on Indian Cotton	1
Note on the Rainfall and character of the Season of Lower Burma for 1887-88	1
Note on the Cotton Crop of the Punjab for 1888	1
Note on the Oil-seeds Crop of the Punjab for 1888	1
Note on the Wheat Crop of the Punjab for 1887-88	1
Progress Report of Forest Administration in the Hyderabad Assigned Districts for 1887-88	2
Railway Trade Report of the North-Western Provinces and Oudh for 1888	2
Report on the Administration of the Abkári Revenue in the Madras Presidency for 1886-87, 1887-88	2
Report on the Administration of the Civil Justice in Oudh for 1887	1
Report on the Administration of the Department of Salt Revenue in the Presidency of Fort St. George for 1886-87, 1887-88	2
Report on the Administration of the Madras Presidency for 1887-88	1
Report on the Administration Report of the Meteorological Department of the Government of India for 1887-88	1
Report on the Revenue Administration of Lower Burma for 1887-88	3
Report on the Arboriculture in Hyderabad Assigned Districts for 1887-88	2
Report of the Australian Museum, New South Wales, for 1888	1
Report on the Cawnpore Experimental Station for the Kharif Season of 1887	2
Report on the Cawnpore Experimental Station for the Rabi Season of 1888	2
Report on Civil Justice in the Hyderabad Assigned Districts for 1887	1
Report on Criminal Justice in the Hyderabad Assigned Districts for 1887	1
Report on the Government Botanical Gardens and Parks in Bengal for 1887-88 ...	1
Report of the External Trade of Bengal with Nepal, Tibet, Sikkim, and Bhutan for 1887-88	1
Report on the Government Agri-Horticultural Gardens, Lahore, for 1887-88	1
Report on the Horticultural Gardens, Lucknow, for 1888	1
Report of the Department of Land Records and Agriculture, Burma, for 1887-88 ...	1
Report on the Jails of the Punjab for 1887	1
Report on the Jail Administration of the Province of Assam for 1887	1
Report on the Jails of the Central Provinces for 1887	1
Report on the Judicial Administration (Civil) of the Central Provinces for 1887 ...	1
Report on the Judicial Administration (Criminal) of the Central Provinces for 1887 ...	1
Report on the Kolar Gold Field and its Southern Extension, with Maps and Sketches .	1
Report on the Nagpur Experimental Farm in the Central Provinces for 1887-88 ...	1
Report on the Meteorology of India for 1887	1
Report on the Operations of the Agricultural Department, Madras Presidency, for 1886-87	1
Report on the Progress and Condition of the Government Botanical Gardens at Saharanpur and Moosoorie for 1888	2
Report on the Prison Administration of Lower Burma for 1887	1
Report on Public Instruction in the Madras Presidency for 1887-88	1
Report on the Railway-borne Traffic of the Central Provinces for 1887-88	1
Report on the River-borne Traffic of the Lower Provinces of Bengal for 1886-87, 1887-88	2
Report on Weights and Measures	1
Report on Sanitary Measures in India for 1886-87	1
Report on the Provincial Museum, Lucknow, for 1888	1
Resolution on the Revenue Administration of the Central Provinces for 1886-87 ...	1
Resolution on the Management by Government of Private Estates in the Central Provinces for 1887	1
Résumé of Pony and Mule Breeding Operations in the Madras Presidency	1
Returns of Railway-borne Traffic, Central Provinces, for 1887, 1887-88...	2
Returns of Agricultural Statistics of British India for 1886-87	1
Review of Forest Administration in British India for 1886-87	1
Review of the Revenue Administration of the Province of Oudh for 1887	1
Rice Crop Prospects of Lower Burma for 1888	2
Selections from the Records of the Government of India, Home Department, for 1887 .	1
Supplement to the Australian Museum Report, New South Wales, for 1887	1

D-6.

Patent Office Papers.

	Volumes.
Abridgments of Patents, Part 2, A.D. 1867—1876, and Part 3, A.D 1877—1883	2
Illustrated Journal of the Patent Office for 1885 (Vols. 3 and 4, Nos. 64 to 115), Index for Subjects	1
Name Index of Applicants for Patents of Invention for the year 1887	1
Name Index of Applicants for Patents of Invention from January to July 1888	1
Patents for Inventions, Specifications, Drawings, Vols. 57 and 61 to 69 for 1885	10
Patents for Inventions, Specifications, Drawings, Vols. 33 to 41, 43 to 47, 49, 51, 66, 69 and 71 to 86 for 1886	34
Patents for Inventions, Specifications, Drawings, Vols. 1 to 26 for 1887	26
Subject-matter Index of accepted complete Specifications of Inventions, A.D. 1885	1
Subject-matter Index of Applications for Letters Patent for 1887	1
Subject-matter Index of complete Specifications advertised as accepted in the Official Journals for A D. 1887 and A.D. 1888	2

D-7.

Blue Books.

Agreements between the British and Persian Governments relative to Telegraphic Communication between Europe and India for 1887	1
East India (Accounts and Estimates) for 1888-89	1
East India (Agricultural Banks) for 1887	1
East India (Deccan Mines) for 1887-88	2
East India (Copy of Correspondence with the India Office on the Plate Duties) for 1888.	1
East India (Contagious Diseases) for 1888	1
East India (Contagious Diseases Acts) for 1888	1
East India China (Exports and Imports) for 1888	1
East India (Education) for 1888	1
East India (Estimate of Revenue and Expenditure of the Government of India) for 1887-88	1
East India (Factory Labour) for 1888	1
East India (Financial Statement) for 1889	1
East India (Further Correspondence) respecting Mr. Taylor of Patna, for 1888	1
East India (Home Accounts) for 1888	1
East India (Horse-Breeding) for 1887	1
East India (Loans Raised in India) for 1888	2
East India (Loans Raised in England) for 1888	2
East India (Moral and Material Progress and Condition) for 1885-86, 1886-87	2
East India (Plate Duties) for 1888	1
East India (Telegraph Department) for 1888	1
East India (Upper Burma Licenses) for 1887	1
East India (Upper Burma Opium Licenses) for 1887	1
First and Second Reports from Select Committee on East India (Hyderabad-Deccan Mining Company) for 1888	2
Further Correspondence respecting the affairs of Central Asia for 1887-88	2
Further Correspondence respecting the North American Fisheries for 1887-88	1
Gold and Silver, Appendix to Final Report of the Royal Commission for 1888	1
Gold and Silver, Final Report of the Royal Commission	1
Gold and Silver Commission, Second Report of the Royal Commission	1
Honiton Lace Industry for 1888	1
India (Marriage and Funeral Customs) for 1888	1
Papers relating to the Expedition against certain Tribes inhabiting the Black Mountain.	1
Report of the Committee on the Organization of the Royal Artillery with Minutes of Evidence for 1888	1
Report of the Inspectors of Irish Fisheries on the Sea and Inland Fisheries of Ireland for 1887	1
Report of a Committee of the Fishery Board for Scotland	1
Return—East India (Army) for 1887	1
Return—East India (Contagious Diseases) for 1888	1
Scotch Herring Trade	1
Sea Fisheries Act (1868)	1
Statistical Abstract relating to British India from 1877-78 to 1886-87	1
Statement of the Trade of British India for the five years 1882-83 to 1886-87	1
Statistical Abstract for the Principal and other Foreign Countries in each year, 1876 to 1885-86	1

D-8.

Trübner's Oriental Series.

	Volumes.
Beal, S.—Life of Hiuen-Tsiang	1
Bretschneider, E.—Mediæval Researches from Eastern Asiatic Sources, Vols. 1 and 2	2
Knowles, J. H.—Folk-Tales of Kashmir	1
Sachan, E. C.—Alberuni, India, Vols. 1 and 2	2

D-9.

Record Publications from the Master of the Rolls.

Calendar of State Papers, Domestic Series, Reign of Charles I, 1641—43, by Hamilton, W. D.	1
Calendar of State Papers, Domestic Series, 1659-60, by Green, M. A. E.	1
Chronicles of Robert Brunne, Parts 1 and 2, by Furnivall, F. J.	2
Chronica Rogeri DeWendover, Vol. 1st, by Hewlett, H. G.	1
Historians of the Church of York and its Archbishops, Vol. 2nd, by Raine	1
Icelandic Sagas Orkneyinga Saga, Vol. 1st, by Vigfusson, G.	1
Icelandic Sagas Hakonar Saga, Vol. 2nd, by Vigfusson, G.	1
Letters and Papers, Foreign and Domestic, Henry VIII, Vol. 10, 1536, by Gairdner, J.	1
Literæ Cantuarienses, Vol. 1st, by Shepherd, J. B	1
Metrical Chronicle of Robert of Gloucester, Parts 1 and 2, by Wright, W. A. ...	1
Stephen, Chronicles, Henry II, Richard I, Vol. 3rd, by Howlett, R.	1

E.

CLASSIFIED List of Expenditure of the Government Central Museum during the year 1888-89.

No. 1888-89.		Actuals, 1888-89.	Revised Estimate, 1888-89.
		RS.	RS.
1	Superintendent, Rs. 500—50—800	7,430	7,400
4	Clerks, between Rs. 50 and 200	3,765	3,720
5	Do. below Rs. 50	1,674	1,663
4	Servants	603	612
	Total, Establishment ...	6,042	5,995
	Travelling Allowance ...	765	1,000
	Supplies and Services.		
	Cost of specimens	1,328	1,250
	Preparation of fittings, furniture, &c.	3,000	3,000
	Total, Supplies and Services ...	4,328	4,250
	Cost of publications	1,800	1,800
	Contingencies.		
	Purchase and repair of furniture	200	200
	Binding books and lithographing plates	300	300
	Rents, rates and taxes	1,080	1,080
	Postal charges, Telegram charges, Office expenses and miscellaneous	4,405	4,225
	Total ...	5,985	5,805
	Grand Total ...	26,350	26,250

GOVERNMENT CENTRAL MUSEUM,
EGMORE,
Madras, 5th July 1889.

(Signed) EDGAR THURSTON,
Supdt., Govt. Central Museum.

ORDER—dated 29th July 1889, No. 642, Revenue.

Miscellaneous.

His Excellency the Governor in Council has read the foregoing report with interest, and considers, that good progress was made during the year.

2. It is satisfactory to note that there was a marked increase in the number of visitors to the Museum during the year under review, as compared with the attendance during any of the preceding 4 years.

3. The charges during the year amounted to Rs. 26,350 against the revised estimate of Rs. 26,250. The expenditure in 1887-88 was Rs. 26,636.

4. In conclusion, His Excellency in Council desires to express his acknowledgments to the various gentlemen who contributed to the Museum.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

To the Superintendent, Government Central Museum.
„ the Government Botanist.
„ the Commissioner of Revenue Settlement, Land Records and Agriculture.
„ Surgeon-General G. Bidie, M.B., C.I.E.

Exd. T. K. Narayana Aiyangar.

150 Copies.

Govt. of {1889} Madras.

REVENUE.

Issued

Recd. *Encl.*

G.O., 29th July 1889, No. 642.

JULY.

Government Central Museum.

The Administration Report of the — for 1888-89, reviewed.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following paper :—

From EDGAR THURSTON, Esq., Superintendent, Government Central Museum, to the Secretary to Government, Revenue Department, dated Madras, 10th July 1890, No. 502 :—

I have the honor to submit to the Right Honorable the Governor in Council my report on the working of the Government Central Museum during 1889-90, and, as it contains a large number of technical terms, I shall be glad to be furnished with a proof of the same together with the original manuscript before striking off. I also request that I may be supplied with 200 copies for distribution to other museums, &c.

ADMINISTRATION REPORT OF THE GOVERNMENT CENTRAL MUSEUM FOR THE YEAR 1889-90.

1. VISITORS TO THE MUSEUM.—The usual statistical returns of the number of visitors to the Museum during the year is given in Appendix C. The total number was 378,234 against 337,801 in 1888-89, being an increase of 40,433.

The number of Gosha visitors was 2,186 against 1,779 in 1888-89, being an increase of 407.

The following statement shows the number of visitors to the Museum during the last five years :—

1885-86	311,462
1886-87	233,028
1887-88	264,182
1888-89	337,801
1889-90	378,234

The Museum was visited by His Royal Highness Prince Albert Victor during his stay in Madras.

2. BUILDINGS.—The cement floors, which were laid down in the two large galleries on the ground-floor and did not meet with my approval, were being taken up and replaced by slates of Cuddapah slate at the end of the year. The pillars in the main hall were attended to, with a view to preventing the oozing and crumbling to which I referred in my last annual report. The roofs of the mineral gallery and Curator's office were repaired, and lightning conduetors were fixed in various places.

3. ESTABLISHMENT.—The only change in the establishment was caused by the death of the door-keeper, who had served Government for more than 30 years. One of the Humáls, A. Ramasawmy, was appointed to fill the vacancy. An Insect-collector was temporarily engaged to collect Insects in Madras and on the Nílgiris. The third taxidermist accompanied me on all my tours, during which he did his work in a very creditable manner.

4. PUBLICATIONS.—The following publications were issued during the year :—

(1) History of the coinage of the territories of the East India Company in the Indian Peninsula, and catalogue of the coins in the Madras Museum.

(2) Catalogue of the coins of the Sultáns of Delhí in the Madras Museum.
(3) Notes on the pearl and chank fisheries, and the marine fauna of the Gulf of Manaar.

Photographs, with a descriptive note, of some brass figures from Vizagapatam and brass toys from Ganjam were sent to the *Journal of Indian Art* in accordance with the orders of Government.

5. TOURS.—During the year I made three official tours, viz., (1) to Pámban, where I was mainly engaged in examining the upraised sub-fossil reef; (2) to Ceylon, where I accompanied Captain Donnan on his inspection of the pearl banks; (3) to the Nílgiris, where a large collection of birds, &c., was made. The results of the two first tours have been published in my 'Notes on pearl and chank fisheries, &c.'

6. BOTANICAL DEPARTMENT.—The Herbarium-keeper re-arranged the specimens of Natural Orders *Urticaceæ—Orchideæ*, according to the 'Flora of British India,' and prepared manuscript catalogues of South Indian pulses, spices and condiments. A collection of plants, ferns and grasses was presented to the Museum by Dr. G. King, Superintendent of the Botanical Gardens, Calcutta; and a collection of woods, seeds, fibres and articles made out of bamboo was presented by J. S. Gamble, Esq., Conservator of Forests. Specimens of Vanilla pods from plants raised in Pondicherry were received from Monsieur Achart; and a collection of brush-making materials from the Board of Revenue.

7. ART GALLERY.—Considerable progress was made with the arrangement of this section. Photographs of South Indian art-ware were framed and hung on the walls of the staircase leading to the gallery, the unsightly windows of which were hidden by palempores. At the top of the staircase some of the arms from the Tanjore armoury were exhibited in wall-cases. Inside the gallery other specimens of arms from Tanjore were exhibited in window recesses. A branched lamp, collections of carved sandal-wood and inlaid ebony and ivory from Mysore, lacquer-ware from Burma, Cashmere and Kurnool, brass toys from Ganjam, and Trichinopoly filigree silver-ware were exhibited in table-cases. The collection of Burmese images, &c., was transferred to the gallery.

8. NUMISMATICS.—The most important additions to the coin collection were—

(1) fifteen *Aurei* of Tiberius, Vespasian, Domitian, Hadrian, Antoninus Pius, Faustina Sen, Marcus Aurelius, Commodus, and Caracalla, found by a native when digging in the old fort at Vinukonda in the Kistna district. A description of these coins has been published in the Journal of the Numismatic Society, 1889, part IV.
(2) coins of the East India Company forming part of treasure found in the Kallikót Zemindar's estate, which were sent to me for examination.
(3) a small copper coin of Charles II, bearing on one side the figure of a Hindu deity and on the other linked C's.
(4) a collection of Chola, Pándyan, Setupati and Walajah coins.
(5) a gold Chola fanam.
(6) the gold Nonambavádi coin, of which there was previously only an electrotype copy in the Museum.

To the Asiatic Society of Bengal, and Bombay Branch of the Royal Asiatic Society the Museum is indebted for many coins presented. A list of the coins acquired during the year will be found in Appendix A.

9. MINERALOGY.—The collection of minerals was labelled throughout; and, as it is arranged according to official districts, it serves as a general index to the mineral resources of the different parts of Southern India, including the Madras Presidency, Mysore and Hyderabad.

A set of cubes of soapstone (steatite) from the North Arcot, Salem, Kurnool, Coimbatore and Bellary districts, and Malabar was received from Government in illustration of a report by Mr. Bosworth Smith, late Government Mineralogist.

A collection of household articles made of soapstone in the Salem and North Arcot districts was acquired by purchase and exhibited; and a series of specimens of

mica and micaceous quartz from the Nizam's dominions, presented by E. H. Sargent, Esq., were exhibited.

10. ETHNOLOGY AND ANTIQUITIES.—A collection of pieces of pottery and bones found in dolmens near Davanur in the Tirukoilúr taluk of the South Arcot district was forwarded to the Museum by the Sub-Collector, with a note to the effect that pottery and bones have been also found in a few other places near Davanur and in villages in the Tiruvannámalai taluk. A carved granite slab with the old Danish arms, which apparently was at one time placed over a gateway, was received from Tranquebar through the Collector of Tanjore. From the Archæological Department were received some Buddhist marble statues and slabs and a large cylindrical stone relic casket from the stupas of Guntupalle, a number of objects from Amrávati, and three carved wooden door-posts and lintel from the temple at Lepakshi in the Anantapur district.

A Pallava grant, bought for Government by Dr. Hultzsch from the Dharmakarta of Kuram, a village near Kanchipuram, was deposited in the Museum. It is engraved on seven thin copper-plates in a bad state of preservation. A translation of it will be published in Dr. Hultzsch's forthcoming 'South Indian Inscriptions.'

11. INDEX COLLECTION.—The commencement was made of an index collection based on that of the British Museum (Natural History), which, in its complete state, should teach the most important points in the structure of the principal types of animal and plant life, and the terms used in describing them.* The series exhibited during the year illustrates, by means of specimens with descriptive labels, arranged in wall and table cases, the outer covering or integument of mammals and its modification into hair, nails, claws, hoofs, horns, antlers, &c. Other series are in course of preparation illustrating the dentition and osteology of mammals, the external characters and osteology of birds, the structure and forms of shells, mimicry, &c. The exhibition of these series will, it is hoped, be of use both to those who are engaged in teaching and to students in Madras, and bring the Museum more into touch with the Educational Department than it has been hitherto.

12. NATURAL HISTORY—(*a*) *Crustacea.*—The collections of Crustacea (Decapoda and Stomatopoda) made by me in the Gulf of Manaar were named by J. R. Henderson, Esq., whose report thereon is published in my 'Notes on Pearl-fisheries, &c.

(*b*) *Insecta.*—The following Lepidoptera (Rhopalocera) from the Nílgiris, Mysore, Ganjam and Madras were added to the collection. The specimens caught within the limits of the city of Madras were arranged in a separate case. For many of the specimens the Museum is indebted to Lieutenant E. Y. Watson.

Family Nymphalidæ.

Danais limniace, *Cramer*	Mysore, Madras.
Do. septentrionis, *Butler*	Do.
Do. chrysippus, *Linné*	Do.
Do. genutia, *Cramer*	Do.
Euplæa core, *Cramer*	Do.
Do. coreoides, *Moore*	Do.
Mycalesis mandosa, *Butler*	Mysore.
Do. mineus, *Linné*	Mysore, Madras.
Do. junonia, *Butler*	Mysore.
Mycalesis runeka, *Moore*	Ganjam.
Yphthima asterope, *Klüg*	Mysore.
Do. huebneri, *Kirby*	Ganjam.
Do. tabella, *Marshall*	Nílgiris.
Melanitis leda, *Linné*	Mysore, Madras.
Elymnias undularis, *Drury*	Ganjam.
Telchinia violæ, *Fabr.*	Mysore, Madras.
Ergolis ariadne, *Linné*	Do.
Atella phalanta, *Drury*	Do.
Precis iphita, *Cramer*	Do.
Junonia asterie, *Linné*	Do.
Do. lemonias, *Linné*	Mysore.
Do. hiertæ, *Fabr.*	Mysore, Madras.
Do. orithyia, *Linné*	Do.

* General Guide to the British Museum (Natural History).

Neptis varmona, *Moore*	Mysore, Madras.
Hypolimnas bolina, *Linné*	Do.
Do. misippus, *Linné*	Do.
Athyma mahesa, *Moore*	Nílgiris.
Sympædra nais, *Forster*	Mysore.
Euthalia garuda, *Moore*	Do.
Pyrameis cardui, *Linné*	Do.

Family Lycœnidæ.

Spalgis epius, *Westwood*	Nílgiris.
Curetis, sp.	Mysore.
Do. thetys, *Drury*	Madras.
Cyaniris puspa, *Horsfield*	Mysore.
Zizera sangra, *Moore*	Do.
Do. karsandra, *Moore*	Madras.
Do. gaika, *Trimen*	Do.
Chilades trochilus, *Freyer*	Nílgiris.
Tarucus plinius, *Fabricius*	Mysore.
Do. nara, *Koltar*	Nílgiris.
Castalius decidia, *Hewitson*	Do.
Do. rosimon, *Fabricius*	Madras.
Nacaduba macrophthalma, *Felder*	Nílgiris.
Do. ardates, *Moore*	Do.
Catochrysops strabo, *Fabricius*	Madras.
Do. cnejus, *Fabricius*	Ganjam.
Do. contracta, *Butler*	Ganjam, Madras.
Do. pandava, *Horsfield*	Madras.
Lampides ælianus, *Fabricius*	Mysore, Madras.
Do. do. (form *alexis*)	Madras.
Talicada nyseus, *Guérin*	Mysore.
Rathinda amor, *Fabricius*	Madras.
Deudorix epijarbas, *Moore*	Do
Rapala melampus, *Cramer*	Do.
Virachola isocrates, *Fabricius*	Nílgiris, Ganjam, Madras.
Do. perse, *Hewitson*	Nílgiris.
Aphnæus trifurcata, *Moore*	Do.
Do. elima, *Moore*	Madras.
Tajuria longinus, *Fabricius*	Mysore.

Family Papilionidæ.

Leptosia xiphia, *Fabricius*	Madras.
Terias hecabe, *Linné*	Do.
Form hecabeoides	Mysore, Madras.
Do. excavata	Mysore.
Do. æsiope	Madras.
Catopsilia catilla, *Cramer*	Mysore, Madras.
Do. crocale, *Cramer*	Do.
Do. gnoma, *Fabricius*	Do.
Do. pyranthe, *Fabricius*	Do.
Ixias pyrene, *Linné*	Madras.
Do. meridionalis, *Swinhoe*	Mysore, Madras.
Hebomoia glaucippe, *Linné*	Do.
Callosune eucharis, *Fabricius*	Madras.
Form pseudevanthe, *Butler*	Do.
Do. danæ, *Fabricius*	Do.
Idmais amata, *Fabricius*	Mysore, Madras.
Catophaga lankapura, *Moore*	Madras.
Appias libythea, *Fabricius*	Do.
Huphina phryne, *Fabricius*	Mysore, Madras.
Belenois mesentina, *Cramer*	Do.
Nepheronia ceylonica, *Felder*	Madras.
Do. sp.	Mysore.
Delias eucharis, *Drury*	Mysore, Madras.
Do. ethire	Ganjam.
Papilio dissimilis, *Linné*	Madras.
Do. dravidarum, *W. Mason*	Nílgiris.

Papilio hector, *Linné*	Mysore, Madras.
Do. aristolochiæ, *Fabricius*	Do.
Do. erithonius, *Cramer*	Do.
Do. pammon, *Linné*	Do.
Do. polymnestor, *Cramer*	Do.
Do. nomius, *Esper*	Nílgiris.
Do. agamemnon, *Linné*	Mysore, Madras.

Family Hesperiidæ.

Badamia exclamationis, *Fabricius*	Madras.
Ismene helirius, *Cramer*	Nílgiris.
Parata chromus, *Cramer*	Madras.
Baracus septentrionis, *W. Mason*	Nilgiris.
Astictopterus sub-fasciatus, *Moore*	Do.
Parnara bada, *Moore*	Madras.
Suastus gremius, *Fabricius*	Nílgiris, Madras.
Telicota bambusæ, *Moore*	Do.
Padraona gola, *Moore*	Nílgiris.
Ampittia maro, *Fabricius*	Do.
Taractrocera ceramas, *Hewitson*	Do.
Thanaos indistincta, *Moore*	Mysore.
Halpe beturia, *Hewitson*	Nílgiris.
Pyrgus galba, *Fabricius*	Do.
Udaspes folus, *Cramer*	Madras.

(*c*) *Scorpions and Centipedes.*—A small collection of scorpions and centipedes from the Madras Presidency was worked out by R. J. Pocock, Esq., of the British Museum (Natural History), and a report published in the 'Annals and Magazine of Natural History,' March 1890, where the following species, five of which are new to science, are recorded :—

(*a*) *Scorpions.*

Isometrus maculatus, (*De Geer.*).	Scorpio swammerdami, (*Simon*).
Buthus martensii, *Karsch.*	Hormurus læviceps, *Pocock.*

(*b*) *Centipedes.*

Scutigera longicornis, *Fabr.*	Otostigma morsitans, *Pocock.*
Rhysida immarginata, *Porath.*	Do. ruficeps, *Pocock.*
Heterostoma spinosum, *Newport.*	Himantarium (?) striatum, *Pocock.*
Otostigma splendens, *Pocock.*	Mecistocephalus punctifrons, *Newport.*

(*d*) *Mollusca.*—The collection of South Indian mollusca, which I took to England for identification in 1888, was arranged and exhibited in the marine gallery. Many species collected during the year at Pámban, Kílakarai and the Ceylon pearl-banks await identification.

Table-cases were exhibited in the marine gallery, illustrating (1) pearl-and-nacre-producing shells, represented by specimens or sections of shells of *Avicula, Mytilus, Placuna, Haliotis and Nautilus*; (2) pearl-oyster shells from the Muttuwartu paar (Ceylon) encrusted by the corals of the genera *Porites, Pocillopora, Galaxea, Cyphastræa, Cœloria, Favia, Goniastræa, Madrepora, Montipora* and *Hydnophora.* An interesting note was published by Edgar A. Smith, Esq., in the 'Annals and Magazine of Natural History' on some shells with the animal, which I collected at Tuticorin and sent to the British Museum (Natural History) and were identified by Mr. Smith as *Lobiger viridis*, G. & H. Nevill, which has also been recorded from Ceylon.

(*e*) *Fishes.*—The following fishes, all, except *Pterois miles* from Pámban, obtained from the Madras fish market, were preserved during the year. The specimens of *Osphromenus olfax* (Gourami) were obtained from one of the tanks in the grounds of Government House, Madras, where this fish, introduced some years ago, abounds.

Galeocerdo rayneri, *McDonald and Barrow.*
Stegostoma tigrinum, (*Gmel.*).
Muræsesox talabon, (*Cuv.*).
Arius, sp.
Chirocentrus dorab, (*Forsk.*).
Clupea ilisha, (*Ham. Buch.*).
Serranus salmoides, (*Lacép.*).
Lutjanus marginatus, (*Cuv. and Val.*).
Pristipoma furcatum, (*Bl. Schn.*).
Diagramma griseum, (*Cuv. and Val.*).
Ephippus orbis, (*Bloch.*).
Pagrus spinifer, (*Forsk.*).
Chrysophrys berda, (*Forsk.*).
Scorpæna, sp.
Pterois miles, (*Bennett*).
Teuthis java, *Linn.*
Acanthurus gahm, *Cuv. and Val.*
Caranx gallus, *Linn.*
Ophiocephalus striatus, *Bloch.*
Osphromenus olfax, *Comm.*
Cynoglossus, sp.
Ostracion cornutus, *Linn.*

In accordance with instructions received from Government I gave assistance to Mr. LeMesurier, of the Ceylon Civil Service, who was sent by the Ceylon Government to Madras to collect young living specimens of *Gourami* and *Labeo* for introduction into the fresh waters of Ceylon.

Numerous specimens of salted fishes were sent by the Salt Department to the Museum for identification.

(*f*) *Amphibians and Reptiles.*—A small collection of Amphibians and Reptiles from North Malabar was presented to the Museum by Rhodes Morgan, Esq., of the Forest Department, and included the following species :—

Amphibia.

Rana malabarica, (*Blgr.*).
Rhacophorus maculatus, *Blgr.*
Ichthyophis glutinosus, *Gray.*
Uræotyphlus oxyurus, *Peters.*

Reptilia.

Oligodon affinis, *Günth.*
Cynophis malabaricus, *Jerd.*
Tropidonotus quincunciatus, *Schl.*
Do. stolatus, *Linn.*
Do. monticola, *Jerd.*
Dendrophis pictus, *Günth.*
Passerita mycterizans, *Linn.*
Passerita purpurescens, *Günth.*
Lycodon aulicus, *Linn.*
Callophis cerasinus, *Bedd.*
Do. sp.
Daboia russellii, *Shaw.*
Trimeresurus anamallensis, *Günth.*
Hypnale nepa, *Laur.*

A small gallery between the main hall and bird gallery was utilised for the exhibition of some of the Crocodilia and Chelonia of Southern India, viz., a skeleton of *Crocodilus porosus* which was shot in the ditch of Fort St. George, where it had been living for many years; stuffed specimens of *Crocodilus porosus* from Cuddalore and *Crocodilus palustris* from Malabar; a skull of *Crocodilus porosus*; and a skeleton of the edible turtle, *Chelone mydas.*

(*g*) *Birds.*—During my tour on the Nilgiri hills, which lasted from February 25th to March 26th, shikarees were engaged in shooting birds in the neighbourhood of Ootacamund, Coonoor, Kótagiri and the lower slopes of the Coonoor ghât from Burliar to the base of the hills. The following list shows the species, which were collected and preserved * :—

(*a*) *Ootacamund.*

J. 83. Hirundo domicola, *Jerd.* ... ... Nilgiri house swallow.
„ 119. Merops swinhœi, *Hume* ... ... Chestnut-headed bee-eater.
„ 205. Hierococcyx varius, *Vahl.* ... ... Common hawk-cuckoo.
„ 257. Lanius erythronotus, *Vig.* ... ... Rufous-backed shrike.

* The numbers refer to Jerdon's "Birds of India."

J.	268.	Campophaga sykesi, *Strick.*	...	Black-headed cuckoo shrike.
„	279.	Dicrurus annectens, *Hodgs.*	...	Crow-billed drongo.
„	302.	Stoporala ablicaudata, *Jerd.*	...	Nílgiri verditer fly-catcher.
„	342.	Myiophonus horsfieldi, *Vig.*	...	Malabar whistling thrush.
„	353.	Monticola cinclorhyncha, *Vig.* ...	...	Indian rock thrush.
„	360.	Merula simillima *Jerd.*	...	Nílgiri ouzel.
„	404.	Pomatorhinus horsfieldii, *Sykes* ...	...	Southern scimitar babbler.
„	423.	Trochalopterum cachinnans, *Jerd.* ...	...	Nílgiri laughing thrush.
„	464.	Chloropsis malabarica, *Gm.*	...	Malabar chloropsis.
„	467.	Ægithina tiphia, *Linn.*	...	Common iora.
„	473.	Oriolus melanocephalus, *Linn.* ...	...	Indian black-headed oriole.
„	481.	Pratincola caprata, *Linn.*	...	White-winged black-robin.
„	686.	Æthiopsar fuscus, *Wagl.*	...	Jungle myna.
„	701.	Munia striata, *Linn.*	...	White-backed munia.

(*b*) *Kótagiri.*

J.	6.	Neophron ginginianus, *Lath.* ...	...	Indian scavenger-vulture.
„	57.	Pernis ptilorhynchus, *Tem.*	...	Crested honey buzzard.
„	234.	Cinnyris asiatica, *Lath.*	...	Purple honey-sucker.
„	272.	Pericrocotus flammeus, *Forst.* ...	...	Orange minivet.
„	645.	Parus atriceps, *Horsf.*	...	Indian grey tit.
„	768.	Alauda malabarica, *Scop.*	...	Crested Malabar lark.
„	786.	Palumbus elphinstonii, *Sykes* ...	...	Nílgiri wood pigeon.
„	798.	Chalcophaps indica, *Linn.*	...	Emerald ground dove.
„	813.	Gallus sonnerati, *Tem.*	...	Grey jungle fowl.

(*c*) *Coonoor and Upper Slopes of Coonoor Ghât.*

J.	23.	Astur badius, *Gm.*	...	Shikra.
„	54.	Circus æruginosus, *Linn.*	...	Marsh harrier.
„	78.	Glaucidium malabaricum, *Blyth.* ...	...	Malabar owlet.
„	85.	Hirundo erythropygia, *Sykes* ...	...	Red mosque swallow.
„	117.	Merops viridis, *Linn.*	...	Common Indian bee-eater.
„	119.	Do. swinhœi, *Hume*	...	Chestnut-headed bee-eater.
„	151	Palæornis columboides, *Vig.*	...	Blue-winged parakeet.
„	175.	Chrysophlegma chlorigaster, *Jerd.* ...	...	Southern yellow-naped woodpecker.
„	180.	Brachypternus aurantius, *Linn.* ...	...	Golden-backed woodpecker.
„	193.	Megalæma caniceps, *Frank*	...	Common green barbet.
„	197.	Xantholæma hæmacephala, *Müll.* ...	...	Crimson-breasted barbet.
„	214.	Eudynamys honorata, *Linn.*	...	Indian koel.
„	216.	Rhopodytes viridirostris, *Jerd.* ...	...	Small green-billed malkoha.
„	217.	Centrococcyx rufipennis, *Ill.*	...	Common coucal.
„	267.	Hemipus picatus, *Sykes*	...	Black-backed pied shrike.
„	268.	Campophaga sykesi, *Strick.*	...	Black-headed cuckoo shrike.
„	272.	Pericrocotus flammeus, *Forst.* ...	...	Orange minivet.
„	279.	Dicrurus annectens, *Hodgs.*	...	Crow-billed drongo.
„	282.	Chaptia ænea, *Vieill.*	...	Bronzed drongo
„	288.	Terpsiphone paradisi, *Linn.*	...	Paradise fly-catcher.
„	290.	Hypothymnis azurea, *Bodd.*	...	Black-naped blue fly-catcher.
„	302.	Stoporala albicaudata, *Jerd.*	...	Nílgiri verditer fly-catcher.
„	304.	Siphia rubeculoides, *Vig.*	...	Blue-throated redbreast.
„	339.	Brachypteryx rufiventris, *Blyth.* ...	...	Rufous-bellied shortwing.
„	342.	Myiophonus horsfieldi, *Vig.*	...	Malabar whistling thrush.
„	351.	Monticola cyanus, *Linn.*	...	Blue rock thrush.
„	353.	Do. cinclorhyncha, *Vig.* ...	...	Indian rock thrush.
„	364.	Geocichla cyanotus, *Jerd. and Selb.* ...	...	White-throated ground thrush.
„	360.	Merula simillima, *Jerd.*	...	Nílgiri ouzel.
„	404.	Pomatorhinus horsfieldii, *Sykes* ...	...	Southern scimitar-babbler.
„	423.	Trochalopterum cachinnans, *Jerd.* ...	...	Nílgiri laughing thrush.
„	434.	Crateropus canorus, *Linn.*	...	Jungle babbler.
„	450.	Iole icterica, *Strick.*	...	Yellow-browed bulbul.
„	460.	Otocompsa fuscicaudata, *Gould.* ...	...	Red-whiskered bulbul.
„	462.	Molpastes hæmorrhous, *Gm.*	...	Madras red-vented bulbul.
„	470.	Oriolus kundoo, *Sykes*	...	Indian oriole
„	475.	Copsychus saularis, *Linn.*	...	Magpie robin.
„	592.	Motacilla melanope, *Pall.*	...	Grey and yellow wagtail.

J. 631. Zosterops palpebrosa, *Temm.* ... ... Indian white-eyed tit.
„ 645. Parus atriceps, *Horsf.* ... ... Indian grey tit.
„ 648. Machlolophus haplonotus, *Blyth.* ... ... Southern yellow tit.
„ 686. Æthiopsar fuscus, *Wagl.* ... ... Jungle myna.
„ 755. Mirafra affinis, *Jerd.* ... ... Madras bush lark.
„ 795. Turtur suratensis, *Gm.* ... ... Spotted dove.
„ 798. Chalcophaps indica, *Linn.* ... ... Emerald ground dove.
„ 813. Gallus sonnerati, *Temm* ... ... Grey jungle fowl.
„ 814. Galloperdix spadiceus, *Gm.* ... ... Red spur fowl.
„ 828. Microperdix erythrorhynchus, *Sykes* ... Painted bush quail.
„ 895. Totanus stagnatilis, *Bechet.* ... ... Little green shanks.

(d) Lower Slopes of Coonoor Ghât.

J. 56. Milvus govinda, *Sykes* ... ... Pariah kite.
„ 78. Glaucidium malabaricum, *Blyth.* ... ... Malabar owlet.
„ 117. Merops viridis, *Linn.* ... ... Common Indian bee-eater.
„ 119. Do. swinhœi, *Hume* ... ... Chestnut-headed bee-eater.
„ 122. Nyctiornis athertoni, *Jerd. & Selb.* ... ... Blue-necked bee-eater.
„ 127. Pelargopsis gurial, *Pears.* ... ... Brown-headed kingfisher.
„ 129. Halcyon smyrnensis, *Linn.* ... ... White-breasted kingfisher.
„ 134. Alcedo bengalensis, *Gm.* ... ... Common Indian kingfisher.
„ 149. Palæornis purpureus, *Müll.* ... ... Rose-headed parakeet.
„ 151. Do. columboides, *Vig.* .... Blue-winged parakeet.
„ 153. Loriculus vernalis, *Sparrm.* ... ... Indian lorikeet.
„ 166 Chrysocolaptes sultaneus, *Hodgs.* ... ... Golden-backed woodpecker.
„ 175. Chrysophlegma chlorigaster, *Jerd.* ... ... Southern yellow-naped woodpecker.
„ 181. Brachypternus puncticollis, *Math.* ... ... Southern golden-backed woodpecker.
„ 193. Megalæma caniceps, *Frank* ... ... Common green barbet.
„ 197. Xantholæma hæmacephala, *Müll.* ... ... Crimson-breasted barbet.
„ 207. Hierococcyx sparverioides, *Vig.* ... ... Large hawk-cuckoo.
„ 214. Eudynamys honorata, *Linn.* ... . Indian koel.
„ 216. Rhopodytes viridirostris, *Jerd.* ... . Small green-billed malkoha.
„ 217. Centropus rufipennis, *Ill.* ... ... Common coucal.
„ 232. Cinnyris zeylonica, *Linn.* ... ... Amethyst-rumped honey-sucker.
„ 267. Hemipus picatus, *Sykes* ... ... Black-backed pied shrike.
„ 272. Pericrocotus flammeus, *Forst.* ... ... Orange minivet.
„ 276. Do. peregrinus, *Linn.* ... ... Small minivet.
„ 279. Dicrurus annectens, *Hodgs.* ... ... Long-tailed drongo.
„ 285. Dissemurus paradiseus, *Linn.* ... ... Larger racket-tailed drongo.
„ 287. Artamus fuscus, *Vieill.* ... ... Ashy swallow shrike.
„ 288. Terpsiphone paradisi, *Linn.* ... ... Paradise fly-catcher.
„ 290. Hypothymnis azurea, *Bodd.* ... ... Black-naped blue fly-catcher.
„ 302. Stoporala albicaudata, *Jerd.* ... ... Nilgiri verditer fly-catcher.
„ 305. Cyornis banyumas, *Horsf.* ... ... Horsfield's blue redbreast.
„ 342. Myiophonus horsfieldi, *Vig.* ... ... Malabar whistling thrush.
„ 353. Monticola cinclorhyncha, *Vig.* ... ... Blue Indian rock thrush.
„ 360. Merula simillima, *Jerd.* ... ... Nilgiri ouzel.
„ 423. Trochalopterum cachinnans, *Jerd.* ... ... Nilgiri laughing thrush.
„ 450. Iole icterica, *Strick* ... ... Yellow-browed bulbul.
„ 457. micropus phæocephalus, *Jerd.* ... ... Grey-headed bulbul.
„ 464. Chloropsis malabarica, *Gm.* ... ... Malabar chloropsis.
„ 467. Ægithina tiphia, *Linn.* ... ... Common iora.
„ 469. Irene puella, *Lath.* ... ... Fairy blue-bird.
„ 470. Oriolus kundoo, *Sykes* ... ... Indian oriole.
„ 473. Do. melanocephalus, *Linn.* ... ... Indian black-headed oriole.
„ 475. Copsychus saularis, *Linn.* ... ... Magpie robin.
„ 481. Pratincola caprata, *Linn.* ... ... White-winged black robin.
„ 645. Parus atriceps, *Horsf.* ... ... Indian grey tit.
„ 674. Dendrocitta rufa, *Scop* ... ... Common Indian tree-pie.
„ 678. Do. leucogastra, *Gould* ... ... Southern tree-pie.
„ 755. Mirafra affinis, *Jerd.* ... ... Madras bush lark.
„ 798. Chalcophaps indica, *Linn.* ... ... Emerald ground dove.
„ 813. Gallus sonnerati, *Temm.* ... ... Grey jungle fowl.
„ 930. Ardeola grayi, *Sykes* ... ... Pond heron.

The following eggs and nests of Indian birds were acquired during the year :—

J. 149.	Palæornis purpureus, *Müll.*	Rose-headed paróquet ; egg.
,, 232.	Cinnyris zelonica *Linn.*	Amethyst-rumped honey-sucker ; eggs and nest.
,, 234.	Do. asiatica, *Lath.*	Purple honey-sucker ; egg.
,, 240.	Piprisoma agile, *Tick.*	Thick-billed flower-pecker ; eggs and nest.
,, 281.	Dicrurus cærulescens, *Linn.*	White-bellied drongo ; eggs and nest.
,, 292.	Rhipidura albifrontata, *Frankl.*	White-browed fantail ; egg.
,, 302.	Stoporala albicaudata, *Jerd.*	Nilgiri verditer fly-catcher ; egg.
,, 345.	Pitta brachyura, *Linn.*	Yellow-breasted ground thrush ; egg.
,, 433.	Crateropus griseus, *Gm.*	White-headed babbler; eggs and nest.
,, 437.	Argya subrufa, *Jerd.*	Rufous babbler ; egg.
,, 444.	Hypsipetes psaroides, *Vig.*	Himalayan black bulbul ; egg.
,, 445.	Do. ganeesa, *Sykes*	South Indian black bulbul ; egg.
,, 452.	Pycnonotus luteolus, *Less.*	White-browed bulbul ; egg and nest.
,, 462.	Molpastes hæmorrhous, *Gm.*	Common Madras bulbul ; egg and nest.
,, 468.	Ægithona tiphia, *Linn.*	Common iora ; egg.
,, 470.	Oriolus kundoo, *Sykes*	Indian oriole ; egg.
,, 480.	Thamnobia cambaiensis, *Lath.*	Brown-backed Indian robin ; egg.
,, 530.	Orthotomus sutorius, *Forst.*	Indian tailor-bird ; egg and nest.
,, 543.	Prinia inornata, *Sykes*	Indian wren-warbler ; egg and nest.
,, 600.	Anthus rufulus, *Vieill.*	Indian tit lark ; egg.
,, 683.	Sturnopastor contra, *Linn.*	Pied starling ; egg.
,, 687.	Temenuchus pagodarum, *Gm.*	Black-headed myna ; egg and nest.
,, 694.	Ploceus philippinus, *Linn.*	Common weaver bird ; eggs and nest.
,, 703.	Amadina malabarica, *Linn.*	Plain brown munia ; egg.
,, 711.	Petronia flavicollis, *Frankl.*	Yellow-necked sparrow ; egg.
,, 758.	Ammomanes phœnicura, *Frankl.*	Rufous-tailed finch lark ; egg.
,, 760.	Pyrrhulauda grisea, *Scop.*	Black-bellied finch lark ; egg.
,, 767.	Alauda gulgula, *Frankl.*	Indian sky-lark ; eggs and nest.
,, 812.	Gallus ferrugineus, *Gm.*	Red jungle fowl ; egg.
,, 814.	Galloperdix spadiceus, *Gm.*	Red spur fowl ; egg.
,, 905.	Gallinula chloropus, *Linn.*	Water hen ; egg.
,, 925.	Herodias torra, *B. Ham.*	Indian white heron ; egg.
,, 934.	Ardetta sinensis, *Gm.*	Yellow bittern ; egg.
,, 944.	Phœnicopterus antiquorum, *Tem.*	Flamingo ; egg.
,, 950.	Sarcidiornis melanonotus, *Penn.*	Nukhta or comb duck ; egg.
,, 952.	Dendrocygna javanica, *Horsf.*	Whistling teal ; egg.

A large number of birds, collected during my tours or purchased in the Madras bazaar, were mounted during the year by the Museum taxidermists.

(*h*) *Mammals.*—In the month of January the carcase of a Cachalot or Sperm whale (*Physeter macrocephalus*), about 24 feet in length, was washed on shore at Madras in an advanced stage of decomposition. The body was buried on the beach, and the skull removed to the Museum. The lower jaw contained 23 functional teeth on each side ; and imbedded in the gum, covering the upper jaw, were 12 rudimentary teeth. This animal is recorded by Gray * (*Catodon macrocephalus*) as being occasionally hunted at the entrance of the Bay of Bengal, within sight of Ceylon.

Specimens of a Dolphin (*Delphinus plumbeus*), Large Fox Bat (*Pteropus edwardsi*), and an Albino Bandicoot (*Mus bandicota*) were stuffed ; and skeletons of a Sheep, Porcupine (*Hystrix leucura*) and common Otter (*Lutra vulgaris*) were prepared during the year.

The carcases of various animals, which died in the People's Park collection, were forwarded to the Museum by the President of the Municipality.

* Catalogue of Seals and Whales in the British Museum, 1866.

(*i*) *Library.*—The number of visitors to the library was 6,684 against 6,568 in 1888-89, being an increase of 116. The additions to the library during the year are recorded in Appendix D, and the following is a summary :—

Presented by Government	134
Do. by private individuals	120
Purchased	123
British Museum publications	7
Patent office papers	139
Trübner's oriental series	1
Periodicals	451
Record publications of the Master of Rolls	13
Parliamentary blue books	47

A commencement was made by Mr. Hensman, Assistant Professor of English at the Presidency College, of a new catalogue of the library.

GOVERNMENT CENTRAL MUSEUM,
EGMORE,
Madras, 10th July 1890.

(Signed) EDGAR THURSTON,
Supdt., Govt. Central Museum.

APPENDICES.

A.

COINS ACQUIRED DURING THE YEAR 1889-90.

Copper, Danish East India Company	Donation.
Do. English do.	Do.
Do. coins (South Indian, &c.) from Kílakarai	Do.
Do. Ceylon coins	Purchase.
Gold, Venetian sequins	Donation.
Collection of English East India Company coins and proofs ...	Purchase.
Gold, South Indian fanams	Do.
Do. Siam coins	Do.
Do. and silver, Patán, Moghul coins, &c.	Asiatic Society of Bengal.
Do. mohur, Muhammad ibn Tughlak	Purchase.
Rupee, Muhammad ibn Sám	Do.
Do. Shér Sháh	Do.
Roman aurei from Vinukonda	Donation.
Gold mohur, Típú Sultán	Purchase.
Rupee, Shams-add-din Altamsh	Do.
Gold pagodas and copper coins found in a metal pot	Donation.
Do. húns from Bijapore, and silver coins of Gujerat and East India Company	Bombay Branch, Royal Asiatic Society.
Double Arcot rupee	Purchase.
Collection of coins of Moghul emperors, kings of Malwa, &c. ...	Asiatic Society of Bengal.
Pagodas of Saadut-Ulla Khán (Nawáb of Carnatic)	Purchase.
Gold coins of Vásudéva	Do.
Aureus of Claudius and Agrippina	Do.
Khálakhabád fanam of Típú	Do.
Fanam of Vijaya Báhu	Do.
Collection of Chola, Pándyan, Walajah and Setupati coins ...	Do.
Copper Mysore coins	Exchange.
Collection of Malabar Muhammadan coins	Do.
Copper East India Company coin (Charles II)	Do.
Collection of East India Company coins from Kallikót estate ...	Purchase.
Do. of Moghul, Patán coins, &c.	Asiatic Society, Bengal.
Gold Nonambavádi coin	Purchase.

B.

GENERAL LIST OF THE CONTRIBUTIONS, &c., RECEIVED FOR THE GOVERNMENT CENTRAL MUSEUM FROM 1ST APRIL 1889 TO 31ST MARCH 1890.

		NO.
Abdul Cawder Sahib, Moothialpet—		
Fish (*Ostracion nasus*)	1	1
Achart, M. D., Monsieur, Pondicherry—		
Vanilla pods		
Andrews, J. L., Esq.—		
Nest of hornet (*Vespa cincta*)	1	1
Antonio, C. J. J., Mr., Pudupet—		
Auriferous quartz	1	2
Iron ore	1	
Athisayam, T. G., Pillay, M.R.Ry.—		
Snake (*Bungarus cæruleus*)	1	1
Bidie, Surgeon-General G., M.B.,C.I.E.—		
Skull of a dog (*Canis familiaris*)	1	1
Cardew, A. G., Esq.—		
Butterfly (*Papilio tamilana*)	1	1
Cardozo, H.O. C., Esq.—		
Stick insect (sp. incert)	1	1
Carter, H. R. P., Esq.—		
Albino bandicoot (*Mus bandicota*)	1	8
Bird (*Limnætus cristatellus*), the crested hawk eagle	1	
Do. (*Totanus glottis*), the green shanks	1	
Do. (*Merops apiaster*), the European bee-eater	1	
Do. (*Circus macrurus*), the pallid harrier	1	
Do. (*Do. swainsonii*), the pale harrier	1	
Do. (*Botaurus stellaris*), the bittern	1	
Snake (*Lycodon aulicus*)	1	
Cuddapah. The District Surgeon—		
Abnormal chicken	1	1
Daly, William Mahon, Esq., Yercaud, Shevaroys—		
Bird (*Elanus melanopterus*), the black-winged kite	1	10
Egg (*Hypsipetes ganeesa*), the ghât black bulbul	1	
Nest and egg of (*Piprisoma agile*), the thick-billed flower-pecker	2	
Do. (*Dicrurus cærulescens*), the white-bellied drongo	2	
Cicada (*Gacana atkinsoni*, Dist.)	2	
Do. (*Platypleura octogulata*, Fabr.)	1	
Do. (*Pomponia linearis*, Walk.)	1	
Gamble, J. S., Esq., Conservator of Forests, Northern Circle—		
Wood specimens	35	72
Seeds (coast drift)	7	
Fibres	4	
Articles made of bamboo	26	
Hammick, M., Esq.—		
Graphite used by potters for polishing pottery, Vizagapatam	1	2
Mantis (sp. incert)	1	
Jago, Colonel—		
Pair of brass Toda anklets	1	1
Karunakara Menon, P., M.R.Ry., Deputy Collector, Saidápet—		
Mantis (sp. incert)	1	1
King, Dr. G., Superintendent, Royal Botanic Gardens, Seebpore, Calcutta—		
Plants	100	118
Ferns	2	
Grasses	16	
Laing, T. W., Esq., Chetput—		
Eggs of canary	3	4
Nest of the pied wagtail (*Motocilla maderaspatana*)	1	
McLeod, General H., The Mansion—		
Slate aquarium	1	1
Mainwaring, E. R. R., Esq., Tuticorin—		
Sands from Cape Comorin	5	5

		NO.
Municipal Commission, Madras, President of—		
Tigar cub (*Felis tigris*)	1	9
Leopards (*Do. pardus*)	3	
Ram (*Ovis aries*)	1	
Otter (*Lutra vulgaris*)	1	
Lemurs	2	
Tasmanian devil (*Dasyurus ursinus*)	1	
Pearl Banks, Tuticorin, Superintendent of—		
Pearls, the produce of 15,000 oysters taken from the Tholayiram paar in November 1888		Collection.
Price, Hon'ble Mr. J. F.—		
Rufous turtle dove (*Turtur meena*)		1
Rajaratna, P., Mudaliar, M.R.Ry.—		
Cockatoo		1
Ramasawmy, C. A. S., Pillay, M.R.Ry., Madras—		
Hen's egg		1
Ratnasawmy Nadar, M.R.Ry., Tranquebar—		
Stone-carving		1
Rea, A., Esq., First Assistant, Archæological Survey Department—		
Buddhist marble statues	3	20
Large cylindrical stone relic casket	1	
Buddhist marble slabs, &c.	Collection	
Miniature dagoba	1	
Small objects found in the centre of a stupa	2	
Objects from Amrávati	Lot	
Images	4	
Carved wooden door-posts and lintel from the temple at Lepakshi in the Anantapur district	3	
Human bones found during the excavation at the Mahabalipuram shore temple near the turned-up image	Lot	
Pottery	Collection	
Bricks	Do.	
Coins	Do.	
Sargent, E. H., Esq., Superintendent, Mica Mines—		
The Hyderabad (Deccan) Company (Limited)—		
Specimens of quartz containing mica, and mica		17
Secretary to Government, Public Department—		
Pieces of a broken copper vessel from Trichinopoly		
Secretary to the Board of Revenue (Revenue Settlement, Land Records and Agriculture)—		
Samples of brush-making materials		
Sharpe, Captain—		
Crocodile (*Crocodilus porosus*)		1
Simpson, Mrs., St. Thomé—		
Dolphin (*Delphinus plumbeus*)		1
Small, Mr. J., Old College—		
Blue-breasted rail (*Rallus striatus*)		1
Sneyd, E. H., Esq., Injambakam—		
Abnormal turkey chick		1
South Arcot, Collector of—		
Pottery		Collection.
Sterndale, R. A., Esq.—		
Madras mungoos (*Herpestes mungo*)	1	8
Skins of birds—		
The Indian ringed plover (*Ægialites philippensis*)	1	
The ring-tailed sea eagle (*Haliætus fuviventer*)	1	
The blue heron (*Ardea cinerea*)	1	
The Himalayan chough (*Fragilus himalayanus*)	2	
Emberiza (sp. incert)	1	
Skin of a snake	1	
Sudarsana, V. E., Mudaliar, M.R.Ry.—		
Abnormal hen's egg		1
Venkata Rangam, A., Nayudu, M.R.Ry., Madras—		
Larva of a moth		1
Watson, Lieutenant E.Y.		
Bird (*Pitta bengalensis*), the yellow-breasted ground thrush		1
Webster, Mr. J. H., Egmore—		
Pond tortoise (*Nicoria trijuga*)	1	2
Beetle (sp. incert)	1	

C.

VISITORS to the Government Central Museum from 1st April 1889 to 31st March 1890.

1889-90.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagaree.	Guzerattee.	Canarese.	Chinese.	Singalese.	Malayalam.	Bengalee.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	2,120	307	200	1,143	29	4	8	12	..	..	52	..
May	2,504	486	145	1,491	21	2	11	38	..	..	31	..
June	2,450	312	277	1,422	23	..	21	1	2	..	16	..
July	1,956	368	172	1,201	17	2	26	13	..	..	22	..
August	1,985	582	431	1,867	6	11	121	71	3	..	40	2
September	1,939	548	226	1,658	7	4	32	70	..	..	74	..
October	2,014	645	337	1,778	12	14	19	102	..	2	59	..
November	2,208	593	316	1,773	20	4	38	53	..	..	29	..
December	3,414	718	261	1,975	22	28	74	64	..	3	50	..
January	4,252	791	268	2,714	9	16	54	138	..	5	78	..
February	1,977	470	240	1,480	..	7	35	49	..	..	44	..
March	2,114	592	262	1,745	..	10	47	67	..	..	39	..
Total ..	28,933	6,412	3,135	20,247	166	102	486	678	5	10	534	2

1889-90.	Total of signatures.	Unable to sign, but tally kept.	Total of visitors.	Number of		Total of visitors.
				Men and boys.	Women and girls.	
	14	15	16	17	18	19
April	3,875	28,217	32,092	16,747	15,345	32,092
May	4,729	26,184	30,913	15,851	15,062	30,913
June	4,524	28,004	32,528	16,366	16,162	32,528
July	3,777	25,974	29,751	15,453	14,298	29,751
August	5,119	24,119	29,238	16,541	12,697	29,238
September	4,558	18,612	23,170	13,374	9,796	23,170
October	4,982	18,427	23,409	13,995	9,414	23,409
November	5,034	19,143	24,177	13,426	10,751	24,177
December	6,609	19,243	25,852	14,947	10,905	25,852
January	8,325	78,060	86,385	36,165	50,220	86,385
February	4,302	14,750	19,052	10,709	8,343	19,052
March	4,876	16,791	21,667	12,779	8,888	21,667
Total ..	60,710	317,524	378,234	196,353	181,881	378,234

D-1.

LIST OF BOOKS ADDED TO THE LIBRARY.

By Purchase (Standard Works).

Volumes.

Agassiz, A.—Bulletin of the Museum of Comparative Zoology at Harvard College, Vol. 10, No. 2 1
Do. A.—On the Embryology of Echinoderms 1
Do. A.—Revision of the Echini with Plates and Text 2
Do. A.—Selections from Embryological Monographs (Echinodermata), Vol. 9, No. 2 1
Airy, G. B.—On Sound and Atmospheric Vibrations, 2nd edition, 1871 1
Aldis, W. S.—An Elementary Treatise on Geometrical Optics, 3rd edition, 1888 ... 1
Anderson, Sir J.—The Strength of Materials and Structures (Text-books of Science series), 9th edition, 1887 1
Atkinson, E. A.—Treatise on Electricity and Magnetism, 1883 2
Atkins, J.—Coins and Tokens of the British Possessions and Colonies 1
Ball, R. S.—Experimental Mechanics, 2nd edition, 1888 1
Ball, V.—Tavernier's Travels in India, Vols. 1 and 2, 2nd edition, 1889 2
Besant, W. H. —Elementary Hydrostatics, 14th edition, 1890 1
Cambridge, Rev. O. P.—On Ceylon Spiders (incomplete) 1
Clausius, R.—The Mechanical Theory of Heat, 1879 1

	Volumes.
Cotterill, J. H.—Applied Mechanics, 1890	1
Cumming, L.—An Introduction to the Theory of Electricity, 3rd edition, 1885	1
Daniell, A. A.—Text-book of the Principles of Physics, 2nd edition, 1885	1
Darwin, Charles.—The Structure and Distribution of Coral Reefs, 3rd edition, 1889	1
Decandolle, A. et C.—Monographiæ Phanerogamarûm, 6th vol. 1889	1
De Gubernatis, A.—Peregrinazioni Indiane India Meridionale E. Seilan	1
Doleschall, C. L.—Tweede Bijadrage Arachniden	1
Donkin, W. F.—Acoustics, Part I (Theoretical), 2nd edition, 1884	1
Drury, C. H.—Reminiscences of Life and Sport in Southern India	1
Encyclopædia Britannica (index volume)	1
Encyclopædic Dictionary, Vol. 4, Parts 1 and 2; Vol. 5, Parts 1 and 2; Vols. 6 and 7	6
Everett, J. D.—Units and Physical Constants, 2nd edition, 1886	1
Faraday, M.—Experimental Researches in Electricity (1839—55), Optics	3
Fourier, J.—The Analytical Theory of Heat, 1878	1
Garnett, W. A.—Treatise on Elementary Dynamics, 5th edition, 1889	1
Do.—An Elementary Treatise on Heat, 5th edition, 1889	1
Geddes, P., and Thompson, J. A.—Evolution of Sex	1
Glazebrook, R. T.—(Text-book of Science series), Physical Optics, 2nd edition, 1886	1
Do. R. T., and Shaw, W. N.—(Text-books of Science series), Practical Physics, 3rd edition, 1889	1
Gray, A.—The Theory and Practice of Absolute Measurements in Electricity and Magnetism, 1888	1
Greaves, J. A.—Treatise on Elementary Statics, 2nd edition, 1888	1
Heath, R. S. A.—Treatise on Geometrical Optics, 1887	1
Heller, C.—Reise Der O'sterreichischen Fregatte Novara Um Die Erde	1
Helmholtz, H. L. F.—On the Sensations of Tone, 2nd edition, 1885	1
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Jenkin, F.—Electricity and Magnetism (Text-books of Science series), 9th edition, 1887.	1
Joule, J. P.—Scientific Papers, 1884—87	2
Kohlrausch, F.—An Introduction to Physical Measurements, 2nd edition, 1883	1
Larden, W.—Electricity for Public Schools and Colleges, 2nd edition, 1889	1
Lendenfeld, R. V. A.—Monograph of the Horny Sponges	1
Lock, Rev. J. B.—Dynamics for Beginners, 2nd edition, 1888	1
Lodge, O. I.—Modern Views of Electricity (Nature series), 1889	1
Lucas, H.—Essai sur une Monographie du genre Thelyphone	1
Maxwell, J. C.—The Electrical Researches of the Hon'ble Henry Cavendish, F.R.S., 1879	1
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Do. Matter and Motion (Manuals of Elementary Science series), 1888	1
Do. Theory of Heat (Text-books of Science series), 9th edition, 1888	1
Mayer, A. M., and Barnard, C.—Light (Nature series), 1889	1
Rankine, W. J. M.—Miscellaneous scientific papers, 1881	1
Rayleigh, J. W. S. B.—The Theory of Sound, 1887-88	2
Ray Lankester, E.—On Scorpions (incomplete)	1
Rodrigues, E. A.—The Hindu Pantheon, Vol. 1, Nos. 20 to 24 and 28 to 35, 1845	13
Rosenbusch, K.—Microscopical Physiography of the Rock-making Minerals, 1888	1
Sanderson, F. W.—Hydrostatics for Beginners, 1889	1
Sarasin, P. and F.—Forschungen auf Ceylon, Vol. 2, Part 3, 1889	1
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Do. C. W.—On Electricity and Miscellaneous, 1889	1
Do. C. W.—Addresses and Lectures, 1889	1
Stevenson, S. M.—Dictionary of Roman Coins	1
Stewart, Balfour.—An Elementary Treatise on Heat, 5th edition, 1888	1
Do. Lessons in Elementary Physics, new and enlarged edition, 1888	1
Stewart, B., and Gee, W. W. H.—Lessons in Elementary Practical Physics, 1889	2
Stokes, G. G.—On Light (Nature series), 1887	1
Do. G. G.—Mathematical and Physical Papers, 1880—83	2
Stone, W. H.—Elementary Lessons on Sound, 1879	1
Streeter, E. W.—Precious Stones and Gems, 4th edition, 1884	1
Tait, P. G.—Lectures on some recent advances in Physical Science, 3rd edition, 1885	1
Do. Do. do. in Heat, 1884	1
Do. Do. do. in Light, 2nd edition, 1889	1
Do. Do. do. in Properties of Matter, 1885	1
Taylor, R.—Scientific Memoirs, 1837—53	7
Thompson, S. P.—Elementary Lessons in Electricity and Magnetism, 1889	1
Do. J. J.—Applications of Dynamics to Physics and Chemistry, 1888	1
Do. S. P.—Dynamo-Electric Machinery, 1884	1

	Volumes.
Thomson, Sir W.—Popular Lectures and Addresses, 1st vol., Constitution of Matter, 1889	1
Do. Sir W.—Reprint of Papers on Electrostatics and Magnetism, 2nd edition, 1884	1
Do. Mathematical and Physical Papers, 1882	2
Do. Sir W., and Tait, P. G.—Treatise on Natural Philosophy, Vol. 1, Parts 1 and 2, new edition, 1888	2
Tufnell, R. H. C.—Hints to Coin-collectors in Southern India	1
Tyndall, J.—Sound, 4th edition, 1883	1
Wallace, A. R.—Darwinism—an Exposition of the Theory of Natural Selection, 1889.	1
Ward, H. M.—Timber and some of its Diseases (Nature series), 1889	1
Wiedemann, G.—Elektricitat, 1882—87	5
Wright, L.—Light, 1882	1

D-2.

By Purchase (Periodicals).

American Naturalist—Nos. 1 to 8, for 1889.
Annales des Sciences Naturelles (Botanique)—Vols. 9 and 10, for 1889.
Do. do. (Zoology)—Vol. 7, Nos. 1 to 6; Vol. 8, Nos. 1 to 3, for 1889.
Annals and Magazine of Natural History—Nos. 16 to 24, for 1889; Nos. 25 and 26, for 1890.
Annales de la Société Entomologique de France—No. 4, for 1888.
Annual Register—2 vols., for 1887-88.
Asian—Nos. 275 to 299, for 1889-90.
Asylum Press Almanac, for the year 1890.
British Association for the advancement of Science—Report of the—4 vols., from 1885 to 1888.
Entomological Society of London—Transactions of the—Parts 1 to 5, for 1889.
Geological Society—Quarterly Journal of the—Nos. 178 to 180, for 1889, and No. 181, for 1890.
Ibis—A Quarterly Journal of Ornithology—Vol. 1, Nos. 2 to 4 for 1888; Vol. 2, No. 1, for 1890.
Illustrated London News—Vol. 95 for 1889; Vol. 96, Nos. 2646 to 2655, for 1890.
Indian Agriculturist—Vol. 14, Nos. 9 to 52, for 1889; Vol. 15, Nos. 1 to 12, for 1890.
Indian Forester—Vol. 15, Nos. 1 to 12, for 1889.
Journal de Conchyliologie—Vol. 37, Nos. 1 to 3, for 1889.
Kobelt, W.—Iconographie der Schalentragenden Europaischen Meeresconchylien—Hefts, 8, 9 and 10.
Linnean Society (Botany)—Journal of the—Vol. 25, Nos. 170 to 172; Vol. 26, No. 173.
Do. (Zoology)—Journal of the—Vol. 20, Nos. 122 and 123; Vol. 21, Nos. 131 to 135; Vol. 23, Nos. 141 to 144.
Linnean Society (Zoology)—Transactions of the—Vol. 5, Part 3.
London Times (Weekly edition)—Nos. 637 to 688, for 1889-90.
Martens, E.—Conchologische Mittheilungen—Hefts 1 and 2.
Moscow, Bulletin de la Société Imperiale de—Vol. 63, No. 4 for 1887; Vol. 64, Nos. 1 to 4, for 1888; Vol. 65, No. 1, for 1889.
Nature—Nos. 1013 to 1062, Vols. 40 and 41, for 1889-90.
Nouvelles Archives du Museum d'Histoire Naturelle—Nos. 1 and 2, for 1889.
Royal Asiatic Society of Great Britain and Ireland, Journal of the—Vol. 20, Part 4, for 1888; Vol. 21, Parts 1 to 4, for 1889.
Royal Society, Philosophical Transactions of the—Vols. 2, A and B, for 1888.
Semper, C.—Reisen im Archipel der Philippinen, zweiter Theil Nudibranchien Von Meere Der Insel Mauritius—Heft. 16, No. 1, for 1889.
Tropical Agriculturist—Vol. 8, Nos. 7 to 12, for 1889; Vol. 9, Nos. 1 to 8, for 1890.
Zoological Society of London, Proceedings of the—No. 4, for 1888; Nos. 1 to 3, for 1889.

D-3.

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Do. do. Vol. 1, Part 2, Pay and Non-effective Pay, Native Troops.	1
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Barberis, T.—Cinque Anni in Birmania	1

	Volumes.
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Bell, G.—Complete Catalogue of Books, including Bohn's Libraries	1
Blumhardt, J. F.—Catalogue of Hindustani printed Books in the British Museum Library	1
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Buddhist Sculptures in the Lahore Museum—Descriptive List of Photographic Negatives of	5
Bulletin, No. 1, of 1889-90, Agricultural Department, Madras.—Essays on Viticulture and Fruitculture in California	1
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Do. No. 6, of do. —South Indian Fodders	1
Do. No. 7, of do. —Forecast of the Outturn of Late-sown Crops in Madras ..	1
Burgess, J.—Archæological Survey of Southern India, No. 3—Notes on the Amrávati Stupa	1
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Calendar of the Medical College, Madras, for 1889-90	1
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Challenger, H. M. S.—Report on the Scientific Results of the Exploring Voyage of the—(Physics and Chemistry), 2nd vol.	1
Challenger, H. M. S.—Report on the Scientific Results of the—(Zoology), Vols. 29 to 32, with plates	7
Chapman, R. L.—Catalogue of the Books in the Library of the Indian Museum, Calcutta	1
Civil Service Regulations, for 1889	1
Cotes, E. C.—Catalogue of the Moths of India, Parts 6 and 7	2
Do. Note on Locusts in India	1
Do. Notes on Indian Economic Entomology, Vol. 1, No. 2	1
Do. Notes on Indian Insect Pests, Vol. 1, No. 1	1
Day, F.—Fauna of British India, Ceylon, and Burma Fishes, Vols. 1 and 2	2
Distant, W. L.—A Monograph of Oriental Cicadidæ, Parts 1 and 2	2
Dulau and Co.—Catalogue of Zoological and Anthropological Books	1
Foord, A. H.—Catalogue of the Fossil Cephalopoda in the British Museum, Part 1, 1888	1
Grierson, G. A.—The Modern Vernacular Literature of Hindustan	1
India Office List, for 1889	1
Kew Gardens, Bulletin of, Miscellaneous Informations, 1889	1
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King, W.—Provisional Index of the Local Distribution of Important Minerals and Stones in the Indian Empire, Part 1	1
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Lendenfeld, R.—Descriptive Catalogue of the Sponges in the Australian Museum, Sydney.	1
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Lydekker, R.—Catalogue of the Fossil Reptilia and Amphibia in the British Museum, Part 2, 1889	1
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Milwaukee, Seventh Annual Report of the Board of Trustees of the Public Museum of 1888-89	1
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Smithsonian Report for the year 1886, Part 1	1
Statistical Atlas of the Bombay Presidency, 1882	2
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Theobald, W.—Index to the Genera and Species of Mollusca in the Indian Museum, Parts 1 and 2	2
Thomas, O.—Catalogue of the Marsupialia and Monotremata in the British Museum, 1888.	1
Trübner's Record for 1889, Vol. 1, Part 2, No. 224	1
Tuffnell, R. H. C.—Catalogue of Mysore Coins in the collection of the Government Museum, Bangalore	1
Ulrich, E. O.—Geological and Natural History Survey of Canada—Contributions to the Micro-palæontology of the Cambro-Silurian Rocks of Canada, Part 2	1
Watt, G.—Notes on Indian Economic Products, Vol. 2, Part 1, No. 2, for 1889-90 ...	2
Do. G.—A Dictionary of Economic Products of India	2
Webster's English and Tamil Dictionary, 3rd edition	1
Whiteaves, J. F.—Contributions to Canadian Palæontology, Vol. 1, Part 2	1
Williams, M. M.—Buddhism	1
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Wood Manufactures in the Punjab-Monograph on, 1887-88	1
Wood-Mason, J.—A Catalogue of the Mantodea	1
Do. Ethiopian and Oriental Representatives of the Mantodean sub-family Vatidæ	1
Woodward, A. S.—Catalogue of Fossil Fishes in the British Museum, Part 1, 1889 ...	1

D-4.

By Gift (Periodicals).

Asiatic Society of Bengal—Proceedings of the, August to December 1888, January to August 1889.

Do. Journal of the, Vol. 57, Part 2, No. 4 for 1888; Vol. 58, Part 1, No. 1, for 1889; Part 2, Nos. 1 to 3 for 1889.

Bombay Branch of the Royal Asiatic Society—Journal of the, Vol. 17, Part 2, No. 47, for 1889.

Ephigraphia Indica and Record of the Archæological Survey of India, Parts 1 to 4, for 1888-89.

Fort St. George Gazette, Nos. 13 to 50 for 1889; Nos. 1 to 12 for 1890.

Gazette of India, Nos. 14 to 52 (Incomplete).

Geological Survey of India—Memoirs of the Palæontologia Indica Salt Range Fossils, series 13, Vol. 4, Part 1.

Geological Survey of India—Records of the, Vol. 22, Nos. 1 to 4, for 1889.

Indian Antiquary, Vol. 17, Parts 3 to 12, for 1888; Vol. 18, Parts 1 to 10, for 1889.

Indian Art, Journal of, Nos. 26 to 29, for Vol. 3.

Madras Journal of Medical Science, Vols. 1 to 12, 1860—68; 12 vols.

Do. do. Vols. 1 to 7, 1870 to 1873; 7 vols.

Do. do. Second series, 1 vol., 1869.

Oesterreichische Monatsschrift für den Orient, Nos. 1, 7 and 8, for 1887; Nos. 3 to 9 and 11, for 1888; Nos. 3, 7, 9 and 11, for 1889.

Quarterly Journal of Veterinary Science in India, Nos. 25 to 28, for 1889.

Statement of Imports and Exports for the Port of Madras, Nos. 1 to 12 for 1889.

The Open Court—a Weekly Journal, Vol. 3, Nos. 5 to 52; Nos. 83 to 130.

The Pandit—a Monthly Publication devoted to Sanscrit Literature, Nos. 1 to 12 for 1889.

D-5.

Reports.

	Volumes.
Administration Report on the Jails of Bengal for 1888	1
Annual Administration Report, Bombay Jails, for 1888	1
Annual Administration Report of the Forest Department for 1887-88 and 1888-89 ...	2
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Annual List of the Establishments in the Revenue Department of the Madras Presidency for 1889	1
Annual Report and List of Accessions, Indian Museum, Calcutta, for 1887—1889 ...	5
Annual Report of the Department of Land Records and Agriculture, Assam, for 1888-89	1

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Annual Report of the Director of Land Records and Agriculture, Assam, for 1888-89.	2
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Annual Report of the Government Experimental Farm, Hydrabad, Sind, for 1889. ...	2
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Report on the Administration of Criminal Justice in Oudh for 1888	1
Report on the Administration of Criminal Justice in Punjab and its Dependencies for 1887	1
Report on the Administration of the Department of Salt Revenue in the Madras Presidency for 1888-89	1
Report on the Administration of the Madras Presidency for 1888-89	1
Report on the Administration of the Meteorological Department of the Government of India for 1888-89	1
Report on the Agricultural and Industrial Exhibition held at Mysore in 1888 ...	1
Report on Arboriculture in the Hyderabad Assigned Districts for 1888-89	2
Report on the Cawnpore Experimental Station for the Karif and Rabi Season for 1888-89.	2
Report on the Civil Justice in the Hyderabad Assigned Districts for 1888	1
Report on the Cereal Plantation at Mergui for 1887-88	4
Report on Criminal Justice in the Hyderabad Assigned Districts for 1888	1
Report on the Department of Land Records and Agriculture, Burma, for 1888-89 ...	1
Report on the Experimental Plantation at Mergui for 1888-89	2
Report on the External Trade of Bengal with Nepal, Tibet, Sikkim and Bhutan for 1888-89	1
Report on the Government Agri-Horticultural Gardens, Lahore, for 1889	1
Report on the Horticultural Gardens, Lucknow, for 1889	2
Report on the Jail Administration of the Province of Assam for 1888	1
Report on the Jails of the Central Provinces for 1888	1
Report on the Jails of the Punjab for 1888	1
Report on the Judicial Administration (Civil) of the Central Provinces for 1888 ...	1
Report on the Judicial Administration (Criminal) of the Central Provinces for 1888 ...	1

	Volumes.
Report on the Kolar Gold Field and its Southern Extension with maps and sketches for 1889	1
Report on the Land Revenue Administration of the Punjab for 1887-88	1
Report on the Mysore Government Museum for 1887-88	1
Report on the Nagpur Experimental Farm in the Central Provinces for 1888-89	2
Report on the Operations of the Agricultural Department, Madras Presidency, for 1887-88	1
Report on the Operations of the Department of Land Records and Agriculture, North-West Provinces and Oudh for 1888	2
Report on the Prison Administration of Burma for 1888	1
Report on the Provincial Museum, Lucknow, for 1889	1
Report on the Revenue Administration of Burma for 1888-89	3
Report on the River-borne Traffic of the Lower Provinces of Bengal for 1888-89	1
Resolution of the Financial Department, Calcutta, for 1889	1
Resolution on the Management by Government of Private Estates in the Central Provinces for 1888	1
Resolution on the Revenue Administration of the Central Provinces for 1887-88	3
Returns of Agricultural Statistics of British India for 1887-88	1
Returns of the Rail-borne Trade of the Central Provinces for 1889	3
Returns of the Rail-borne Traffic of the Central Provinces for 1888-89	2
Review of the Revenue Administration of the Province of Oudh for 1888	1
Statement showing Quantities and Values of Important Minerals produced in each British Province and Native State of India for 1888	1
Statement showing Quantities and Values of Important Minerals produced in the Native State of Baroda for 1888	1
Statement showing the Total Trade of Bengal for 1888	1

D-6.

Patent office papers.

Abridgments of Patents, Acids, Alkalies, Oxides and Salts, Divisions 2 and 3, Part 2, A.D. 1867—1876	2
Abridgments of Patents, Bleaching, Dyeing and Printing Calico and other Fabrics and Yarns, A.D. 1877—1883	1
Abridgments of Patents, Wearing Apparel, Division 3, Foot Coverings, A.D. 1877—1883	1
Abridgments of Patents, Wearing Apparel, Division 1, Head Covering, A.D. 1877—1883	1
Digest of the Reports of Patent Design and Trade-mark Cases, Vols. 3 and 4	2
Digest of the Report of Patent Cases, Vols. 1 and 2	2
Illustrated Journal of the Patent Office, Nos. 134 to 146, 148, 150 to 195, 197, 198, 200 to 202	64
Illustrated Journal of the Patent Office, Index of Names, Vols. 1 to 4 for 1884-85	2
Illustrated Journal of the Patent Office, Index of the Subjects, Vols. 1 to 6 for 1884—86	5
Illustrated Official Journal (Patents), Nos. 1, 2 and 4 to 61	60
Index to the Official Journal of the Patent Office, Vols. 3, 5, 6, 7, 8, 9 and 10 for 1885—88	7
Index to the Reports of Patent Design and Trade-mark Cases, Vols. 4 and 5 for 1887-88	2
Name and Index of Applicants for Patents of Inventions from January to November 1888	5
Official Journal of the Patent Office, Nos. 385 to 388, 391 to 404, 409, 410, 413, 414 417 to 462 and 464 to 469	74
Patents for Inventions, Specifications and Drawings, Vols. 27 to 91 for 1887 and Vols. 1 to 37 and 40 for 1888	103
Reports of Patent Design and Trade-mark Cases, Vol. 4, Nos. 14 to 18 and 20 for 1887; Vol. 5, Nos. 1 to 23 for 1888	29
Subject-matter Index of Complete Specifications advertised as accepted in the Official Journal for A.D. 1881	1
Subject-matter Index of Complete Specifications advertised as accepted in the Official Journal, Nos. 1 to 12 for A.D. 1889	6

D-7.

Blue Books.

East India (Abkári Department), 1889	1
Do. (Accounts and Estimates), 1889-90	1

	Volumes.
East India (Assam Coolies), 1889	1
Do. (Bombay Burma Trading Corporation)	1
Do. (Cooper's Hill College), 1889	1
Do. (Distress at Ganjam), 1889	1
Do. (Erratum for Moral and Material Progress and Condition of India), 1886-87.	1
Do. (Estimate of Revenue and Expenditure of the Government of India), 1888-89.	1
Do. (Factory Act), 1889	1
Do. (Famine Insurance), 1889	1
Do. (Home Accounts) of the Government of India, 1889	1
Do. (Hyderabad Deccan Mining Company), 1888	1
Do. (Loans raised in England), 1889	1
Do. (Loans raised in India), 1889	1
Do. (Plate Duties), 1888	1
Do. (Progress and Condition), 1887-88	1
Do. (Public Works Department), 1888	1
Do. (Reports on Impurities in Indian Wheats), 1888-89	1
Do. (Return—Factory Act), 1889	1
Do. (Return—Financial Statement), 1889-90	1
Do. (Testing of Arms)	1
Do. (Uncovenanted Service), 1889	1
India (Emigration), 1889	1
Indian Administration during the thirty years, 1889	1
Report of Inspectors of Irish Fisheries on the Sea and Inland Fisheries of Ireland, 1889	1
Report on Inquiries held by the Inspectors of Irish Fisheries	1
Report on Sanitary Measures in India in 1887-88, together with miscellaneous information to June 1889, Vol. 21	1
Report of the Committee appointed to inquire into the Pay, Status and Condition of of Service of Medical Officers of the Army and Navy, 1889	1
Report of the Proceedings of the Conference on Indian Wheat Impurities	1
Report of the Royal Commission on the Blind, the Deaf and Dumb, &c., in the United Kingdom	4
Scottish Mussel and Bait Beds—Report of the Committee with Evidence, &c.	1
Sea Fisheries (England and Wales)—Third Annual Report of the Inspector, 1888	1
Sea Fisheries (Regulation Act), 1888	1
Sea Fisheries of the United Kingdom, 1889	1
Seventh Annual Report of the Fishery Board of Scotland, Parts 1 and 3, 1888	2
Siam No. 1—Extract from a Journal, 1889	1
Statement of the Trade of British India with British Possessions and Foreign Countries for the five years (1883 to 1888)	1
Statistical Abstract relating to British India from 1878 to 1888	1
Trade of India and the Colonies, 1889	1
Twenty-eighth Annual Report of Inspectors (England and Wales), 1888	1
University for London Commission—Minutes of Evidence, &c., taken before the Commissioners	1

D-8.

Trübner's Oriental Series.

Anderson.—English Intercourse with Siam in the Seventeenth Century	1

D-9.

Record Publications from the Master of the Rolls.

Calendar of State Papers, Domestic series, 1644, by W. D. Hamilton	1
Calendar of the Proceedings of the Committee for Advance of Money, 1642—56, Parts 1—3, by M.A.E. Green	3
Chronica Rogeri DeWendover, 2nd vol., by H. G. Hewltt	1
Chronicles by John DeWavrin, 1399—1422	1
Gaimar Lestori des.Engles, 1st vol., by T.D. Hardy	1
Letters and Papers, Foreign and Domestic, Henry VIII, Vol. XI, 1536, by J. Gairdner.	1
Literæ Cantuarienses, Vol. 2, by J. B. Sheppard	1
Tripartite Life of St. Patrick, Vols. 1 and 2, by W. Stokes	2
Willelmi Malmesbirienses Monachi DeGestis Regum Anglorum, 1st vol., by W. Stubbs.	1
Year Book, 14 Edward III, by L. O. Pike	1

E.

CLASSIFIED List of Expenditure of the Government Central Museum during the year 1889-90.

No. 1889-90.		Actuals, 1889-90.	Revised estimate, 1889-90.
		RS.	RS.
1	Superintendent, Rs. 500—50—800	8,000	8,000
	4 between Rs. 50 and 200—		
	One curator at Rs. 150 per mensem.		
	„ head taxidermist at Rs. 60 per mensem ...	3,620	4,296
	„ herbarium-keeper at Rs. 50 per mensem ...		
	„ draughtsman at Rs. 50 per mensem		
	5 below Rs. 50—		
	One assistant curator at Rs. 48 per mensem ...		
	„ writer at Rs. 30 per mensem		
	„ second taxidermist at Rs. 26 per mensem ...	1,752	1,176
	„ librarian at Rs. 25 per mensem		
	„ third taxidermist at Rs. 17 per mensem ...		
	4 servants—		
	„ printer at Rs. 14-8-0 per mensem		
	„ head humál at Rs. 12-8-0 per mensem ...		
	„ man in charge of Superintendent's room at Rs. 12 per mensem	621	612
	„ assistant librarian at Rs. 12 per mensem ...		
	Total, Establishment ...	5,993	6,084
	Travelling allowance ...	672	1,000
	Supplies and Services.		
	Cost of specimens	1,000	1,000
	Preparation of fittings, furniture, &c.	2,857	3,000
	Total, Supplies and services ...	3,857	4,000
	Cost of books and publications	1,789	1,800
	Contingencies.		
	Purchase and repair of furniture	200	200
	Binding books and lithographing plates	1,007	800
	Rents, rates and taxes	1,080	1,080
	Postal charges, telegram charges, office expenses and miscellaneous	4,281	4,254
	Total, Contingencies ...	6,568	6,334
	Grand Total ...	26,879	27,218

GOVERNMENT CENTRAL MUSEUM,
EGMORE,
Madras, 10th July 1890.

(Signed) EDGAR THURSTON,
Supdt., Govt. Central Museum.

ORDER—dated 15th August 1890, No. 660, Revenue.

Miscellaneous.

With his letter read above, the Superintendent, Government Central Museum, submits an interesting report on the working of the Museum during the year 1889-90, which shows that considerable progress has been made, especially in the Natural History section. The Government is glad to learn that an index collection, modelled on that of the British Museum, is in preparation.

2. There was again an increase in the number of visitors to the Museum, and it is especially satisfactory to notice that these included more gosha ladies than in the preceding year.

3. The expenditure during the year amounted to Rs. 26,879 as compared with Rs. 26,350 during 1888-89; the excess of Rs. 529 was due to the incremental increase in the salary of the Superintendent.

4. In conclusion, His Excellency the Governor in Council desires to tender his thanks to the various ladies and gentlemen who sent contributions to the Museum.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

To the Superintendent, Government Central Museum.
„ the Government Botanist.
„ the Commissioner of Revenue Settlement, Land Records and Agriculture.
„ the Surgeon-General with the Government of Madras.

No. 660A.

Copy to the Government of India, Revenue and Agricultural Department.

(Signed) C. A. GALTON,
Secretary to Government.

Exd. A. Aubert.

280 Copies.

Govt. of {1890} Madras.

REVENUE.

Issued

Recd. *Encl.*

G.O., 15th August 1890,
Nos. 660, 660A.

AUGUST.

Report.

Reviewing the — on the working of the Government Central Museum, Madras, during the year 1889-90.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following paper:—

From EDGAR THURSTON, Esq., Superintendent, Government Central Museum, to the Secretary to Government, Revenue Department, dated Madras, 10th July 1891, No. 450.

I have the honour to submit to the Right Honorable the Governor in Council my report on the working of the Government Central Museum during 1890-91; and, as it contains a large number of technical terms, I shall be glad to be furnished with a proof of the same, together with the original manuscript, before striking off. I also request that I may be supplied with 100 copies for distribution to other Museums, &c.

ADMINISTRATION REPORT OF THE GOVERNMENT CENTRAL MUSEUM FOR THE YEAR 1890-91.

1. VISITORS TO THE MUSEUM.—The usual statistical returns of the number of visitors to the Museum during the year are given in appendix B. The total number was 364,542 against 378,234 in 1889-90.

The number of Gosha visitors was 1,457 against 2,186 in 1889-90.

The following statement shows the number of visitors to the Museum during the last five years:—

1886-87	233,023
1887-88	264,182
1888-89	337,801
1889-90	378,234
1890-91	364,542

2. ESTABLISHMENT.—The appointment of Curator was abolished, and the former Assistant Curator R. Damodarum Naidu was appointed First Assistant. A. B. Vijayaragava Mudaliar was selected, from several hundred candidates, for the post of Second Assistant. The salaries of the herbarium keeper, writer, head and assistant librarian were raised according to the following statement:—

Title.	Present salary.	Sanctioned rise of salary.
First Assistant	Rs. 60 per mensem.	Rs. 60—70
Second Assistant	,, 35 do.	,, 35—50
Herbarium keeper	,, 50 do.	,, 50—60
Writer	,, 30 do.	,, 30—35
Head Librarian	,, 25 do.	,, 25—30
Assistant Librarian	,, 12 do.	,, 12—17
Third Taxidermist	,, 17 do.	,, 17—26

Vide G.O., No. 5329, dated 27th August 1890, Revenue.

3. BUILDINGS AND GROUNDS.—The work of replacing the cement flooring of the galleries of antiquities and mammals and birds by Cuddapah slates was completed. The Superintendent's house underwent general repairs. A number of trees in the Museum grounds had to be cut down, so as to make room for the Public Library and Technical Institute, and were sold by auction. A mantapam had also to be removed from the site of the Public Library, and was set up beneath a Banyan tree in another part of the grounds.

4. PUBLICATIONS.—During the year a descriptive "Guide to the Natural History and Mineral Galleries," and "Catalogue of Minerals, Ores and Rocks. with a note on Meteorites, of which the fall in Southern India has been recorded," were issued. I was engaged in the preparation of a catalogue of the coins of Southern India in the Museum collection, the completion of which will, however, take a long time. Notes were also made with a view to the issue of a second edition of my "Notes on Pearl and Chank Fisheries, etc."

5. TOURS.—Two official tours were made by me in company with my taxidermists. During the first of these I, as in several previous years, stayed on Rámesvaram Island, where I was mainly engaged in the collection and preservation of marine worms and molluscan shells, which have since been sent to England and Germany to be worked up. Many specimens of the brightly coloured "coral-fishes," which abound over the fringing coral-reefs, were also preserved by the glycerine process introduced by Mr. A. Haly, of the Colombo Museum, for the preservation of colours. The advantage, in this respect, of preservation in glycerine instead of alcohol, is well shown by specimens exhibited in the fish gallery. My stay on Rámesvaram Island completed, I paid a short visit to Tuticorin, so as to work out some doubtful points in connection with the anatomy of the pearl-oyster. Later in the year I made a second tour, through Mysore and Coorg, during which large collections were made illustrative of the arts, industries, manufactures, and natural history of the places visited in the Bangalore, Hassan, Shimoga and Mysore districts. These collections include Srávanbelgola brass-ware, Soráb and Sagar sandal-wood carving, Channapatna silk and toys, Mysore inlaid ware, gold jewelry from Bélur, butterflies, lizards, snakes, etc. A report on this tour will be published after a further visit to the Mysore Province, a large area of which remains to be explored.

6. ART GALLERY.—The most important addition to the Art section was a handsome brass-lamp with branches, which was purchased for Rs. 250. Either this lamp or one resembling it is figured in plate 24 of Hawkes' "Photographs of Madras art-ware." A case was exhibited illustrating the ethnology of the Kádirs of the Anamalais by means of specimens of brass and bead jewelry, bangles, cooking and domestic utensils, musical instruments, tops, bows and arrows, yam-digger, fishing rod and line, and model of hut. Specimens of Sivaganga and Kumbakonam brass and copper-ware were exhibited in a small wall case supported on a lacquered bracket made at the local school of arts. Specimens of brass-ware and inlaid Mysore ware were added to the existing collections.

A model carved in teak-wood of an Ananta vahanum (vehicle used in Hindu temples) was presented by His Highness the first Prince of Travancore, and exhibited.

The gallery was hung throughout with palempores returned from the Indo-Colonial exhibition.

7. ECONOMIC PRODUCTS.—Arrangements were made for the reservation for the Museum of duplicate collections of the economic products of Southern India to be made for the Imperial Institute. Information was afforded to the Government Laboratory, Somerset House, as to the growth and manufacture of Nankin cotton in the Madras Presidency, and samples from the Rajahmundry jail were forwarded.

8. ETHNOLOGY AND ANTIQUITIES.—A collection of pottery found in ancient graves in the Pollachi taluk of the Coimbatore district was forwarded to the Museum by Mr. Harding, Head Assistant Collector of Coimbatore, with a copy of his report thereon, for publication in the "Madras Journal of Literature and Science." Some relics found in ancient graves at Sultan's Battery in South Wynaad were presented by Mr. R. Milne. Two cannons found near Pondicherry on the site of one of Dupleix's Battles, on which a tomb has been erected in memory of a British officer who was killed, were acquired by purchase.

A number of sculptured marbles from Amarávati were, at the suggestion of Lord Connemara, sent to the Museum from the Kistna district, and will eventually be set up as companions to the Amarávati marbles which are already arranged.

The following copper-grants were deposited in the Museum:—

(*a*) A fragment of a Pallava copper-plate grant, which was found lying in a tobacco field in the village of Darsi in the Nellore district.

(*b*) Three copper-plates, presented to the Archæological Department by the Dharmakarta of Sríperumbudur, consisting of a genealogical account of the Tuluva dynasty of Vijayanagar, a grant of land, and imprecatory verses. The plates are dated Saka, 1460.

(*c*) A prakrit-grant of the Pallava King, Sivaskandavarman.[1]

A small collection of relics from Guntapalle and Amarávati was presented by Mr. A. Rea, of the Archæological Survey.

9. HERBARIUM.—The herbarium-keeper arranged the specimens of natural orders *Scitamineæ to Eriocauleæ* according to Bentham and Hooker's "Genera Plantarum" (volume III). A number of gaps in the South Indian collection were filled up by plants collected in the Madras Agri-Horticultural Society's Gardens.

The specimens illustrative of the natural orders *Urticaceæ* and *Gramineæ* were arranged by Mr. M. A. Lawson, Government Botanist, and returned.

To Dr. G. King, Superintendent of the Botanical Gardens, Calcutta, the Museum is indebted for a donation of 171 dried specimens from Assam, Pegu, the Malay Archipelago, Andaman Islands, and other places.

The herbarium specimens of rices and cotton were sent for examination to Dr. G. Watt, and returned.

10. INDEX COLLECTIONS.—The following additions to the index collections referred to in my last annual report (paragraph 11) were arranged, and exhibited :—

(1) The Molluscan shell illustrated by different types of gastropod, cephalopod, pteropod and lamellibranch shells, sections of shells, drawings, and cameos.

(2) Crocodilia and Chelonia illustrated by stuffed crocodiles, turtles and tortoises, labelled skeletons and bones, skin, eggs, and tortoise-shell comb.

(3) Birds illustrated by labelled skeletons (articulated and disarticulated), types of skull, breast-bones, feet, heads and tail-feathers, neck-feathers and wing-coverts of jungle fowl, wing-feathers of argus pheasant, tail-feathers of peacock, head of owl, feathers showing large accessory plume, and down and contour feathers of swan.

(4) Mammalian dentition illustrated by skulls, teeth and sections of teeth of various piscivorous, carnivorous, insectivorous, omnivorous and herbivorous animals.

Each series was illustrated by a full printed description mounted in a frame over the corresponding table-case. My expressed hope that these series would be of use, both to those who are engaged in teaching and to students, has been fully realised.

11. MINERAL GALLERY.—The collection of rocks was labelled throughout, the best specimens being indicated by a red cross on the label. This gallery now contains a fairly representative collection of the rocks and minerals of Southern India arranged according to official districts and provinces, and is in a condition to be useful for class purposes.

Cases were arranged containing—

(1) A collection of fossil corals, mollusca, etc., from the upraised reef at Pámban.

(2) A series of fossils (cephalopods, gastropods, etc.) from the Trichinopoly district and Pondicherry. A good collection of fossils from the cretaceous system of the Trichinopoly district is a great desideratum.

The following specimens were added to existing collections :—

Brecciated Hæmatite jasper boulder, Dharwar system, Narihalla.
Conglomerate with crushed pebbles, Dharwar system, Joga valley.
Contorted and eroded riband jasper, Dharwar system, Narihalla.
Auriferous quartz with pyrites, Wynaad.
Polished and unpolished pebbles made from clear and smoky quartz, Vallam.

For the specimens from Narihalla and the Joga valley the Museum is indebted to Mr. R. Bruce Foote; and it is, also, indebted to Mr. Hamilton, of the Madras Engineering College, for a collection of rocks made during a tour, which awaits arrangement.

One large meteorite and two fragments were received through the Board of Revenue. Concerning the conditions under which these stones fell, the Tahsildar of Tirupatúr in the Salem district reported as follows :—"On the 4th of June 1890, at

[1] Epigraphia Indica, Part I, October 1888.

about 8 A.M., there was a sudden clap of thunder accompanied by an unusual rumbling noise. At this time two stones are said to have fallen in the village of Kakangarai. The fall of both the stones occurred at the same time in adjacent fields, and was witnessed by rayats, who were ploughing close by at the time. One stone appears to have been broken up and divided among the rayats, while the other was taken charge of by the village munsif. The large specimen weighs $11\frac{1}{4}$ ounces, and the fragments weigh about 1 ounce and $\frac{1}{8}$ ounce respectively.

12. NATURAL HISTORY—(*a*) *Sponges.*—Specimens of the following species from the Gulf of Manaar were exhibited :—

Petrosia testudinaria, juv. *Lamk.*	Tuticorin.
Axinella tubulata, *Bowerbank*, sp.	Pámban.
Do. labyrinthica, *Dendy.*	Do.
Auletta aurantiaca, *Dendy.*	Do.
Phakellia ridleyi, *Dendy.*	Do.
Reniera madrepora, *Dendy.*	Tuticorin.
Spongionella holdsworthi, *Carter*	Chévalpar.

Several specimens of the tetractinellid sponge Tetilla hirsuta, *Dendy.*, were obtained during my stay at Pámban, and preserved in alcohol. The collection of dried sponges was varnished with canada-balsam varnish throughout, to ensure their preservation. I also found it necessary to varnish the recently made collection of dried Crustacea, to protect the specimens against the attacks of ants.

(*b*) *Echinoderms.*—

Antedon palmata, *Müll.*	Pámban.
Asterodiscus elegans, *Gray*	Tuticorin.
Echinaster purpureus (*Gray*) *Bell*	Do.
Pentaceros lincki, *de Bl.*	Do.
Do. thurstoni, *Bell*	Pámban.
* Scytaster novæ caledoniæ, *Perr.*	Tuticorin.
Ophionereis dubia, *Lym.*	Do.
Ophiothrix aspidota, *M. Tr.*	Do.
* Astrophytum (clavatum, *Lym.* ?)	Do.
Pseudoboletia maculata, *Tr.*	Do.
Phyllacanthus baculosa, *A. Ag.*	Do.
Clypeaster humilis, *Leske.*	Pámban.
Metalia sternalis, *Lmk.*	Tuticorin.
* Lovenia elongata, *Gray*	Pámban.
* Sabmacis bicolor, *Ag.*	Do.
Toxopneustes pileolus *Ag.*	Tuticorin.
Stomopneustes variolaris, *Lmk.* (with excentric apical area)	Pámban.
Holothuria marmorata, *Jäger* (cooked and dried ready for shipment to China)	Do.

(*c*) *Hirudinea.*—While engaged in the examination of some pearl-oysters in a bucket of sea-water at Tuticorin, I found a small marine leech (*Pontobdella*, sp.) adhering by its sucker to one of my fingers. The specimen was preserved in alcohol.

(*d*) *Insects.*—The collection of butterflies, made in Mysore towards the end of the year, awaits examination. The following species, collected within the city of Madras, were added to the existing local collection :—

Curetis phædrus, *Fabr.*	Snastus gremius, *Fabr.*
Tarucus plinius, *Fabr.*	Chapra mathias, *Fabr.*
Castalius rosimon, *Fabr.*	Telicota bambusæ, *Moore.*
Catochrysops pandava, *Horsf.*	Ampittia maro *Fabr.*
Rathinda amor, *Fabr.*	Taractrocera mævius, *Fabr.*
Virachola isocrates, *Fabr.*	Gomalia albo-fasciata, *Moore.*
Parnara guttata, *Brem.* and *Gray.*	Hesperia galba, *Fabr.*

NOTE.—The species marked with an [*] asterisk have also been recorded from Ceylon (see "Döderlein in Spengel's Zoolog, Jahrbuch, 1888").

Collections of beetles were made, through the medium of Messrs. M. A. Lawson, J. Cameron, and W. M. Daly on the Nílgiris, Shevaroys, and the Mysore plateau. Specimens of the migratory locust (*Acridium peregrinum*) were received for indentification from the Bellary, Vizagapatam, Kistna, Nellore, Cuddapah and North Arcot districts; and the specimens were sent to the British Museum (natural history).

(*c*) *Mollusca.*—Shells of the following species were exhibited :—

Spirula peronii, *Lmk.*	Kílakarai, Dutch bay, Karaitivu par.
Ianthina africana, *Reeve*	Pámban, Kílakarai.
Murex (Ocinebra) sp.	Tuticorin.
Do. ternispina, *Lmk.*	Tranquebar.
Pyrula (Melongela) vespertilio, *Lmk.*	Do.
Do. (Tudicla) spirillus, *Lmk.*	Do.
Do. cochlidium, *Linn.*	Pámban, Chéval par.
Ficula lævigata, *Reeve*	Pámban, Tranquebar.
Pleurotoma (Surcula) javana, *de Roiss*	Tranquebar.
Cythara pallida, *Reeve*	Tuticorin.
Triton cingulatus, *Pfeiff*	Tranquebar.
Ranella spinosa, *Lmk.*	Do.
Buccinum (Cantharus) melanostoma, *Sow* ...	Tuticorin.
Do. tranquebaricum, *Mart.*	Tranquebar.
Nassa canaliculata, *Lmk.*	Do.
Eburna spirata, *Lmk.*	Do.
Rapana bulbosa, *Soland*	Do.
Ancillaria (Sparella) ampla, *Gmel.*	Pámban, Chéval par.
Turbinella cornigera, *Lmk.*	Tuticorin.
Do. pyrum, *Lmk.*	Pámban, Tranquebar.
Marginella angustata, *Sow*	Kílakarai, Cheval and Karaitivu pars.
Engina, sp.	Tuticorin.
Harpa ventricosa, *Lmk.*	Tranquebar.
Cassis (Bezoardica) glauca, *Brug*	Pámban, Tranquebar.
Cassis canaliculata, *Lmk.*	Tranquebar.
Dolium maculatum, *Lmk.*	Pámban, Tranquebar.
Natica lineata, *Lmk.*	Do.
Do. maroccana, *Chemn.*	Tuticorin.
Do. (Neverita) didyma, *Bolt*	Tranquebar, Muttuwartu par.
Do. (Polinices) mamilla, *Linn.*	Muttuwartu par.
Solarium perspectivum, *Lmk.*	Pámban.
Do. purpuratum, *Hinds.*	Tranquebar.
Conus litteratus, *Linn.*	Tuticorin.
Pterocera lambis, *Linn.*	Silávaturai.
Cypræa arabica, *Linn.*	Pámbam.
Do. carneola, *Linn.*	Muttuwartu par.
Do. moneta, *Linn.*	Pámban.
Cerithium morus, *Linn.*	Do.
Triforis cingulatus, *Ad.*	Tuticorin, Dutch bay.
Do. ruber, *Hinds.*	Tuticorin, Muttuwartu par.
Turritella terebra, *Lmk.*	Pámban.
Siliquaria anguina, *Linn.*	Do.
Phorus solaris, *Reeve*	Vizagapatam.
Galerus extinctorium, *Sow*	Pámban.
Crepidula walchi, *Hermanns*	Tuticorin.
Neritina, sp.	Kílakarai, Karai, Karaitivu par.
Clypeola, sp.	Tuticorin, Dutch bay, Karaitivu par.
Turbo (Senectus) margaritaceus, *Linn.*	Tuticorin.
Liotia cidaris, *Reeve*	Kilakarai, Muttuwartu par.
Rotella vestiaria, *Sow*	Pámban, Karitivu par.
Trochus (Polydonta) radiatus, *Gmel.*	Pámban, Dutch bay.
Dentalium octogonum, *Lmk.*	Pámban.
Scutellina asperulata *A. Ad.*	Turicorin.
Bulla ampulla, *Linn.*	Muttuwartu par.
Haminea cymbalum, *Quoy* and *Gaim.*	Tuticorin.
Lobiger viridis, *G. and H. Nevill*	Pámban.

Xesta ceylanica *Pfr.*	Pámban.
Hemiplecta lixa, *Blanfd.*	Do.
Helix bistrialis, *Beck.*	Do.
Do. (Eurystoma) vittata, *Müll.*	Do.
Do. (Trachia) fallaciosa, *Fér.*	Do.
Buliminus (Rhachis) punctatus, *Ant.*	Do.
Do. (Mastus) chion, *Pfr.*	Do.
Jovannetia globosa, *Quoy*	Kílakarai.
Siliqua radiata, *Linn.*	Pámban.
Corbula modesta, *Hinds.*	Dutch bay, Muttuwartu par.
Do. sulculosa, *H. Ad.*	Tuticorin.
Donax cuneata, *Linn.*	Tranquebar.
Do. scortum, *Linn.*	Pámban and Tranquebar.
Circe personata, *Deshay*	Muttuwartu par.
Tapes adspersa, *Chemn.*	Do.
Cardium rubicundum, *Reeve*	*Dutch bay.*
Codakia, sp.	*Tuticorin, Kílakari, Dutch bay, Muttwartu par.*
Crassatella radiata *Reeve*	*Dutch bay, Cheval par.*
Cardita antiquata, *Dunker*	*Pámban.*
Modiola tulipa, *Lmk.*	Silávaturai.
Lithodomus stramineus, *Dunker*	Pámban.
Do. teres, *Philipp*	Do.
Pectunculus taylori, *Angas*	Pámban, Dutch bay.
Leda mauritiana, *Sow.*	Dutch bay, Karaitivu par.
Tridacna, sp.	Pámban.
Avicula zelera, ...	Muttuwartu par.
Malleus vulgaris, *Lmk.*	Pámban.
Sunetta meroe, *Linn.*	Tranquebar.

(*f*) *Tunicata.*—During my stay at Pámban, I met with a specimen of a social Ascidian, which was kept alive for some days in a tank, and eventually preserved and sent to Dr. W. A. Herdman by whom it has been described and recorded as a new species (*Ecteinascidia thurstoni*) in the Trans. Biol. Soc., Liverpool, December 1890.)

(*g*) *Fishes.*—The big shark (*Rhinodon typicus*), which was acquired for the Museum in 1889, was exhibited in the fish gallery, from the roof of which it was suspended by iron rods.

To Mr. A. Alcock, Surgeon-Naturalist to H. M. S. Investigator, the Museum is indebted for the following fishes (in alcohol) from the Bay of Bengal :—

Bathybial Fishes.

Chaunax pictus, *Lowe*	193 fathoms.
Paradicrolene multifilis, *Alcock*	

Hemi-bathybial Fishes.

Parascombrops pellucidus, *Alcock*	Ganjam Coast 98—102 fathoms.
Uranoscopus crassiceps, *Alcock*	
Gobius cometes, *Alcock*	
Trigla hemisticta, *Schlegl*	
Scopelus pterotus, *Alcock*	
Scianectes macrophthatmus, *Alcock*	
Cynoglossus carpenteri, *Alcock*	

Shore Fishes.

Champsodon vorax, *Günth.*	Andamans.
Brachypleura xanthosticta, *Alcock*	Ganjam Coast.
Rhomboidichthys azureus, *Alcock*	Do.
Lacops guentheri, *Alcock,*	Off. Vizagapatam.
Arnoglossus macrolophus, *Alcock*	Ganjam Coast.
[1]Solea oculus, *Alcock*	Do.
Cynoglossus melanopterus, *Bleeker*	Do.
Pseudorhombus malayanus, *Bleeker,*	Off. Vizagapatam.

Numerous specimens of dried fishes were sent to the Museum for identification by the Salt Department.

[1] Very commonly caught in the fishing nets at Madras.

The preservation of fishes by the glycerine process has been already referred to.

(*h*) *Batrachia, Lacertilia, and Ophidia.*—The spirit collection of lizards was examined, and arranged in wall cases in an annexe between the skeleton and bird galleries.

The following species of frogs, lizards, and snakes (all, except *Callula triangularis*, from the Nílgiris) were returned to the Museum by Dr. C. Boettger, of Frankfurt, out of a collection which was sent to him for examination :—

Batrachia.

Rhacophorus pleurostictus, *Gthr.*
Ixalus signatus, *Blyr.*
Rana temporalis, *Gthr.*
Do. verrucosa, *Gthr.* (a rare species previously recorded from Malabar).
Callula triangularis, *Gthr.*

Lacertilia.

Draco dussumieri, *Dum* and *Bibr.*
Calotes versicolor, *Dand.*
Charasia dorsalis (*Gray.*)
Do. blanfordiana (*Stol.*) (previously recorded from the Godávari valley, Jeypore and Nagpur).
Salea horsfieldi, (*Gray.*)
Mabuia carinata, (*Schn.*).
Lygosoma bilineatum, (*Gray.*)
Gonatodes indicus, (*Gray.*)

Ophidia.

Tropidonotus plumbicolor, *Cant.*
Trimeresurus strigatus, *Gray.*
Do. anamallensis, *Gthr.* (not previously recorded from these hills).
Xylophis perroteti, (*Dum* and *Bibr.*)
Oligodon venustus, (*Jerd.*).
Do. subgriseus, (*Dum* and *Bibr.*)
Lycodon travancoricus, (*Beld.*)
Dryophis perroteti, (*Dum* and *Bibr.*)
Silybura brevis, *Gthr.*
Plectrurus perroteti, (*Dum* and *Bibr.*)
Coluber helena, *Daud.*
Typhlops braminus, *Daud.*
Do. thurstoni, *Bttgr.* (a new species, "larger than *T. braminus* with a relatively long tail (twice as long as broad), and next to *T. theobaldianus*, Stol., but well distinguishable," Boettger).

(*i*) *Mammals and Birds.*—Considerable progress was made with the re-casing of the gallery devoted to mammals and birds, and with the making of new stands for the specimens. I hope that the reorganisation of this section, which is much needed, will be on a fair way to completion before the end of the ensuing year.

In December 1890, a whalebone whale, whose length was estimated to be 60 feet, was washed on shore, in an advanced state of decomposition, near the part of Hangarkatta on the West Coast. The skull and lower jaws (which measure 13 feet 3 inches in length) were, at my request, preserved and forwarded to the Museum. Specimens of the Ceylon langúr, slender lemur, large fox-bat, leopard and large civet-cat, and the common tree-cat were stuffed. Skeletons of the slender lemur, common Indian otter, and common jungle-cat were prepared.

A collection of rats and mice from the city of Madras and Ootacamund was sent to Mr. W. L. Sclater, of the Indian Museum, by whom they were examined and returned. The Madras specimens, among which there were eight species, included what is, apparently, the English black rat, and the rare *Crocidura bidiana* (Bidie's shrew), which is recorded by Blanford (*Fauna of British India*) from Madras and Bombay. The Ootacamund specimens comprised only two species, viz., the South Indian variety of the common mole-rat (*Nesokia bengalensis*) and the common tree-rat of India (*Mus rattus rufescens*).

A large number of birds, either collected on my tours on the Nílgiris or purchased in the Madras bazaar, were stuffed.

The Museum is indebted to the Honourable Mr. J. F. Price, for specimens of the painted snipe (*Rhynchœa bengalensis*) and painted sand-grouse (*Pterocles fasciatus*); and to Mr. H. R. P. Carter for a nest and eggs and birds of the Indian cliff swallow (*Hirundo fluvicola*) and five specimens of the bittern (*Botaurus stellaris*).

13. *Numismatics.*—The most important addition to the coin department was a collection of roman *denarii* found by a native when digging at Vellalur in the Coimbatore district, where a similar find of 522 *denarii* was made in the year 1842. The present find consisted of 188 *denarii* of Augustus, 328 of Tiberius, 2 of Antonia, 4 of Drusus senior, 8 of Caligula, 14 of Claudius, and 1 of Nero and Agrippina. A description of the coins has been sent to the Numismatic Society of London.

A didrachma of Azilises (not in the British Museum catalogue) was acquired by purchase. A series of Muhammad Shâhi pagodas, found in the Bellary district, was purchased through the Court of Wards. A gold Rama Tanka was also purchased. A rare copper-coin of the East India Company, bearing on the obverse the monogram V. E. I. C. and on the reverse the numeral 3 was obtained by exchange. During my tour in Mysore copper-coins of Típú Sultán struck at Bellary and Zafarabád (Coorg), Soobaroye, Balapur and Nandi fanams, fanams bearing the legends Chatrapati, Srîrâma, Sikandar, and Alamgir, a half-pagoda of Harihara (Vijayanagar), and Fárúki pagodas of Típú Sultán were purchased.

To the Asiatic Society of Bengal and Bombay branch of the Royal Asiatic Society, the Museum is indebted for many coins of Northern India.

14. *Photography.*—At my suggestion a camera, with lenses by J. Swift and Son was purchased for the Museum, and has already been of great use in taking photographs of the Rámésvaram island reefs, and micro-photographs of sections of the pearl-oyster for future publication.

15. *Library.*—The number of visitors to the library during the year was 6,235 against 6,684 in 1889-90. The additions to the library are recorded in appendix C, and the following is a summary :—

Presented by Government	177
Do. by private individuals	87
Standard works by purchase	62
British Museum publications	8
Patent Office papers	107
Trübner's Oriental series	1
Periodicals	544
Record publications of the Master of the Rolls	11
Parliamentary Blue-books	39

One book was stolen from the library, and the thief could not be traced.

Mr. Hensman, Assistant Professor of English at the Presidency College, continued the manuscript for the library catalogue; and my own time was, for several months, mainly occupied in making a further manuscript list of books.

GOVERNMENT CENTRAL MUSEUM,
EGMORE,
Madras, 10th July 1891.

(Signed) EDGAR THURSTON,
Supdt., Govt. Central Museum.

APPENDICES.

A.

GENERAL LIST OF THE CONTRIBUTIONS, &c., RECEIVED FOR THE GOVERNMENT CENTRAL MUSEUM FROM 1ST APRIL 1890 TO 31ST MARCH 1891.

	NO.
Ambrose, C. A., Pillay, M.R.Ry.—	
Fish ... ... 1 Collection	...
Insects	
Athisayam, T. G., Pillay, M.R.Ry.—	
Insects	5
Benson, C., Esq., Assistant Director of Agriculture—	
Weevils from Cholum	
Benson, R. S., Esq., Cuddalore—	
Jemmy	1

		NO.
Bidie, Surgeon-General G., C.I.E.—		
Woodcuts of botanical drawings	12	
Burmese cheroots and the various articles in the rough used in making the cheroots	Collection.	
Boddy, Major, O. V.—		
Wood bored by Pholas		
Bourne, Dr. A. G.—		
Fish (Julis lunaris)		1
Cardew, A. G., Esq.—		
Butterfly (Sp.?)	1	
Kerivoula picta (painted bat)	1	2
Carter, H. R. P., Esq., Chetput—		
Presbytis cephalopterus (Ceylon langúr)	1	
Hylobates, sp. (Gibbon)	1	
Hirundo fluvicola (Indian cliff swallow)	4	
Botaurus stellaris (Bittern)	5	16
Wing and head of duck (Anas pœcilorhyncha)		
Do. do. (Anas boschas ?)		
Eggs and nest of Hirundo fluvicola (Indian cliff swallow)		
Crocodilus porosus	2	
Cuddapah district, Collector of—		
Gold coins		16
Daly, William Mahon, Esq., Yercaud—		
Beetles from Shevaroys		Collection.
Damodarum R., Naidu, M.R.Ry.—		
Fish (Serranus lanceolatus)		1
Fisher R., Esq.—		
Micaceous iron ore		
Foote, R. B., Esq., Geological Survey, Yercaud—		
Brecciated Hæmatite jasper boulder, Narihalla		
Conglomerate, with crushed pebbles, Joga valley		
Contorted riband jasper, Narihalla		
Eroded riband jasper, Narihalla		
France, Mrs. G., Madras—		
Pteropus medius (young flying-fox)		1
Harding, H. O. D., Esq., Head Assistant Collector, Coimbatore—		
Specimens of pottery		Collection.
Heming, F. W., Colonel—		
Fish (Pterois miles)		1
Honorary Secretary, Bombay Branch, Royal Asiatic Society—		
Copper-coins bearing the name "Ahmednaggar" found in the Nassik district	3	
Copper-coins of different Muhammadan dynasties found in the Belgaum district	5	13
Silver coins, "Gadhia"	3	
Silver coins of Aurungazeeb from Amarávati district	1	
Gold do. do. do.	1	
Honorary Secretary (Philological) Asiatic Society of Bengal—		
Rupees (Punjab Government)	2	
Silver-coins (do.)	6	
Gold and silver-coins (Punjab Government)	2	
Copper-coins (do.)	57	86
Indo-Sassanian coins (Chief Commissioner of Ajmere)	10	
Silver-coins (Bengal)	5	
Do. (do.)	4	
Hultzsch, Dr. E., Government Epigraphist, Bangalore—		
Copper-plate inscription of Vijayanagara		
Kistna district, Collector of—		
Copper Patán coins	2	
Lead Andhra coins	13	15
Lindsay, L. I,. Esq.—		
Moth		1
Massy, A., Esq.—		
Nycticorax griseus (night-heron)		1

	NO.
Milne, R., Esq.—	
Relics found in pre-historic stone tombs, South Wynaad	3
Municipal Commission, Madras, President—	
Felis pardus (leopard cub) 1	2
Mellivora indica (Indian badger) 1	
Price, Honourable Mr. J. F.—	
Bird (Rhynchæa bengalensis) painted snipe 1	3
Birds male and female (Pterocles fasciatus) painted sand-grouse 2	
Rea, A., Esq., Archæological Survey—	
Collection of copper-coins, relics, beads, &c., from Guntapalle and Amarávati 1	2
Prákrit-grant of the Pallava king Sivaskandavannam 1	
Sanderson, G. P., Esq.—	
Tail of elephant	
Secretary to the Board of Revenue (Land Revenue)—	
Meteorite which fell at Kakangarai 1	3
Pieces of meteorite which fell at Kakangarai 2	
Secretary to the Board of Revenue (Revenue Settlement, Land Records and Agriculture)—	
Burner tops made from soap stone	2
Setu, C. Rau Garu, M.R.Ry., Tahsildar of Sirvel taluk, Kurnool district—	
A pair of slippers	
Sharp, A. H., Esq., Devikulam, Madura district—	
Paradoxurus jerdoni (brown palm-civet)	
Superintendent, Royal Botanical Garden, Calcutta—	
Herbarium Sheets of dried plants	103
Tate, A. C., Esq., Tindivanam—	
Paradoxurus musanga (common tree-cat)	1
Taylor, R. S. M., Mr., Poodoopet—	
Copper coins	3
Travancore, H. H. the first Prince of—	
Teak carving of a model of Ananthavahanum	
Venkatarungum, A., Naidu Garu, M.R.Ry.—	
Larva of a moth	1

GOVERNMENT CENTRAL MUSEUM,
EGMORE,
Madras, 10th July 1891.

(Signed) EDGAR THURSTON,
Supdt., Govt. Central Museum.

B.

Visitors to the Government Central Museum during the year 1890-91.

1890-91.	SIGNATURES MADE IN											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagaree.	Guzerattee.	Canarese.	Chinese.	Singalese.	Malayalam.	Bengalee.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	1,962	589	265	1,791	..	16	31	41	..	5	59	2
May	2,232	655	459	2,124	2	4	70	68	..	..	36	..
June	2,375	977	225	1,790	4	11	61	248	3	..	65	2
July	2,672	770	408	2,481	4	12	79	100	..	6	53	31
August	2,075	609	237	1,824	..	8	45	73	4	..	46	..
September	2,187	599	228	1,850	..	2	45	117	..	..	37	..
October	2,380	678	197	1,907	7	..	41	107	..	..	70	2
November	2,162	613	233	1,793	1	5	44	68	1	2	63	..
December	3,714	845	281	4,106	16	23	89	97	4	3	104	..
January	2,566	797	268	2,415	5	17	38	69	..	1	65	..
February	2,079	589	247	1,811	4	3	30	56	4	..	35	1
March	2,298	732	256	1,965	..	18	29	70	..	1	57	..
Total ..	28,702	8,453	3,304	25,857	43	119	602	1,114	16	18	690	38

1890-91.	Total of signatures.	Unable to sign, but tally kept.	Total of visitors.	Number of		Total of visitors.
				Men and boys.	Women and girls.	
	14	15	16	17	18	19
April	4,761	18,572	23,333	13,570	9,763	23,333
May	5,650	22,775	28,425	16,976	11,449	28,425
June	5,761	22,247	28,008	16,002	12,006	28,008
July	6,616	25,847	32,463	18,792	13,671	32,463
August	4,921	16,358	21,279	12,640	8,639	21,279
September	5,065	17,214	22,279	12,839	9,440	22,279
October	5,389	19,035	24 424	13,598	10,826	24,424
November	4,985	16,471	21,456	11,758	9,698	21,456
December	9,282	38,221	47,503	23,197	24,306	47,503
January	6,241	61,891	68,132	32,142	35,990	68,132
February	4,859	17,816	22,675	12,305	10,370	22,675
March	5,426	19,139	24,565	13,337	11,228	24,565
Total ..	68,956	295,586	364,542	197,156	167,386	364,542

C-1.

LIST OF BOOKS ADDED TO THE LIBRARY.

By Purchase (Standard Works).

Agassiz, A.—Exploration of the Surface Fauna of the Gulf Stream, 1883.
Do. A.—North American Acalephæ, 1865.
Do. L.—Florida Reefs, 1880.
Anderson, J.—Fauna of Mergui and its Archipelago, 2 vols., 1889.
Anthropology.—Notes and Queries, British Association, 1874.
Baker, S. W.—Wild Beasts and their Ways—Reminiscences of Europe, Asia, Africa, and America, 2 vols., 1890.
Bastian, A., and Hartmann, R.—Zeitschrift für Ethnologie, 4th Band, 1872.
Birdwood, Sir G.—Report on the Old Records of the India Office, 1890.
Blanford, H. F.—Elementary Geography of India, Burma and Ceylon, 1890.
Bonavia, E.—The cultivated Oranges and Lemons of India and Ceylon, Text and Plates, 2 vols., 1890.
Buckler, W.—The Larvæ of the British Butterflies and Moths, 3rd vol., Ray Society, 1889.
Darwin, C.—Naturalist's Voyage round the World ed. 1890.
Day, F.—Supplement to the Fishes of India, Burma and Ceylon, 1888.
DeMarkoff, A.—Catalogue Des Monnaies Arsacides, Subarsacides, Sassanides, Dabweihides, 1889.
Fauna und Flora des Golfes Von Neapel, Part 17, 1890.
Ferguson, A. M., and J.—Gold, Gems and Pearls in Ceylon and Southern India, 1888.
Godwin—Austen H. H.—Land and Freshwater Mollusca of India. Text and Plates, 6 parts of each, 1882—88.
Haase, E. Indisch-Lessshace Australischen Myriopoden, No. 5, 1887.
Heller, C.—Fauna des rothen Meers, Beitrage zur Crustaceen. Erster Theil, 1860.
Jerdon, T. C.—Catalogue of the Species of Ants found in Southern India.
Klein, C.—Meteoriten sammlung der Berliner Universität, 1889.
Leidy (J.).—Elrachet Fresh-water Rhizopods of North America, 1879.
Lessing, J.—Ancient Oriental Carpet Patterns of the Fifteenth and Sixteenth Centuries, 1879.
Locard, A.—Les Huîtres et les Mollusques comestibles, 1890.
Michael, A. D.—British Oribatidæ. Ray Society, 2nd vol., 1888.
Milne-Edwards, A.—Bulletin of the Museum of Comparative Zoology, Harvard College, Etudes preliminaires Sur les Crustaces, Vol. 8, No. 1, 1880.
Milne-Edwards, A.—Recherches sur la Faune Carcinologique de la Nouvelle Caledonie.
Mivart, G.—Dogs, Jackals, Wolves, and Foxes—Monograph of the Canidæ, 1890.
Moore, F.—Lepidoptera Indica, Vol. 1, Parts 1 to 6, 1890-91.
Munro, W. T.—Madrasiana, 3rd edition, 1889.
Munt Kabinet von S. Rijks te Utrecht.—Catalogus der gouden zilveren, koperen, en brounzen specien, 1813—87.
Muséé Des Armes rares Anciennes et Orientales.
Munzkabinet Königliche Museum zu Berlin, 1890.
Niven, W. D.—Scientific Papers of James Clerk Maxwell, 2 vols., 1890.
Oldham, R. D.—Bibliography of Indian Geology, 1888.
Ramakrishna, T.—Life in an Indian Village, 1891.

Roscoe, Sir H. E., and Schorlemmer, C.—Treatise on Chemistry, Vol. 1; Vol. 2, Parts 1 and 2; Vol. 3, Parts 1, 2, 4 and 5; 7 vols., 1889.
Schlich, W.—Manual of Forestry, 1st vol., 1889.
Semper, C.—Reisen im Archipel der Philippinen, 2, nos., 1868—86.
Stroganoff, S.—Collection Des Monnaies Orientalis, 1880.
Thomson, Sir W.—Mathematical and Physical papers, 3rd vol., 1890.
Vaillant, M. L.—Histoire Naturelle Des Annelles marins et d'ean douce, with plates. Vol. 3, Parts 1 and 2, 1889-90.
Waterhouse, C. J.—Practical Notes on the Preparation of Drawings for Photographic reproduction, 1890.
Weber, M.—Zoologische Ergebnisse einer Reise in Niederlandich Ost Indien, 1st Part, 1890.
Weismann, A.—Biological Memoirs on Heredity, 1889.

C-2.

By Purchase (Periodicals).

American Naturalist—Nos. 9 to 12, 1889; Nos. 1 to 11, 1890.
Annales des Sciences Naturelles (Botanique)—Vol. 11, Nos. 1 to 6; Vol. 12, Nos. 1 to 3, 1890.
Do do. (Zoologie)—Vol. 8, Nos. 4 to 6, 1889; Vol. 9, Nos. 1 to 6; Vol. 10, Nos. 1 to 3, 1890.
Annals and Magazine of Natural History—Nos. 27 to 36, 1890; Nos. 37 and 38, 1891.
Annales de la Société Entomologique de France—Nos. 1 to 4, 1889; Nos. 1 and 2, 1890.
Annual Register—1889.
Asian—Nos. 300 to 337, 1890-91.
British Association for the advancement of Science—Report 1889.
Curtis—Botanical Magazine—Vol. 46, Nos. 4 to 12, 1890; Vol. 47, Nos. 1 to 3, 1891.
Entomological Society of London—Transactions—Parts 1 to 4, 1890.
Geological Society of London—Quarterly Journal—Nos. 182 to 184, 1890.
Ibis—A Quarterly Journal of Ornithology—Vol. 2, Nos. 5 to 8, 1890; Vol. 3, No. 9, 1891.
Illustrated London News—Vols. 97 and 98, Nos. 2657 to 2707, 1890-91.
Indian Agriculturist—Vol. 15, Nos. 13 to 52, 1890; Vol. 16, Nos. 1 to 12, 1891.
Indian Forester—Vol. 16, Nos. 1 to 12, 1890.
Journal de Conchyliologie—Vol. 37, No. 4, 1889; Vol. 38, Nos. 1 to 3, 1890.
Lawrence Asylum Press Almanac—1891.
Linnean Society (Botany)—Journal—Vol. 26, Nos. 174 and 175; Vol. 27, Nos. 181 to 186; Vol. 28, Nos. 189 to 192.
Do. (Zoology)—Journal—Vol. 23, Nos. 145 to 147.
Do. (do.)—Transactions—Vol. 5, Parts 4 and 5.
London Times (weekly edition)—Nos. 689 to 740, 1890-91.
Moscow, Bulletin de la Société Imperiale de—Vol. 65, Nos. 2 to 4, 1889.
Museum d'Histoire Naturelle—Nouvelles Archives—Nos. 1 and 2, 1890.
Nature—Nos. 1063 to 1114, Vols. 41—43, 1890-91.
Palæontographical Society—Transactions—Vol. 43, 1889.
Quarterly Journal of Microscopical Science—Vol. 26, No. 101, 1886; Vol. 28, Nos. 109 to 112, 1888; Vol. 29, No. 116, 1889; Vol. 30, No. 120, 1890.
Royal Society, Philosophcal Transactions—Vol. 180 (B), 1889.
Spengel, J. W.—Zoologische Jahrbrücher; Abtheilung fur Systematik Geographie und Biologie der Thiere—Vols. 3, 4 and 5, Hefts 1 to 4, 1889—90.
Do. Anatomie und Ontogenie der Thiere—Vols. 3 and 4, Hefts 1 and 2, 1889-90.
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D.

CLASSIFIED List of Expenditure of the Government Central Museum during the year 1890-91.

No. 1890-91.		Actuals, 1890-91.	Revised estimate, 1890-91.
		RS.	RS.
1	Superintendent, Rs. 500—50—800	8,600	8,600
5	between Rs. 50 and 200—		
	* One curator at Rs. 150 per mensem		
	* „ Assistant curator and first assistant at Rs. 54—60 per mensem	3,987	3,936
	„ head taxidermist at Rs. 60 per mensem ...		
	„ herbarium-keeper at Rs. 50 per mensem ...		
	„ draughtsman at Rs. 50 per mensem		
4	below Rs. 50—		
	* One second assistant at Rs. 35 per mensem ...		
	„ writer at Rs. 30 per mensem		
	„ second taxidermist at Rs. 26 per mensem ...	1,269	1,281
	„ librarian at Rs. 25 per mensem		
	„ third taxidermist at Rs. 17 per mensem ...		
4	servants—		
	One printer at Rs. 14-8-0 per mensem		
	„ head humal at Rs. 12-8-0 per mensem		
	„ peon in charge of Superintendent's room at Rs. 12 per mensem	612	612
	„ Assistant librarian at Rs. 12 per mensem ...		
	Total, Establishment ...	5,868	5,829
	Travelling allowance ...	402	1,000
	Supplies and Services.		
	Cost of specimens	5,820	1,000
	Preparation of fittings, furniture, &c.	2,946	3,000
	Total, Supplies and services ..	8,766	4,000
	Cost of books and publications	1,497	1,800
	Contingencies.		
	Purchase and repair of furniture	200	200
	Binding books and lithographing plates	772	800
	Rents, rates and taxes	1,080	1,080
	Postal charges, telegram charges, office expenses and miscellaneous	62	4,264
	Total, Contingencies ...	2,114	6,344
	Grand Total ...	27,247	27,573

GOVERNMENT CENTRAL MUSEUM,
EGMORE,
Madras, 10th July 1891.

(Signed) EDGAR THURSTON,
Supdt., Govt. Central Museum.

* Reorganization from the 12th December 1890.

ORDER—dated 2nd September 1891, No. 815, Revenue.

Miscellaneous.

The Superintendent's annual report for 1890-91 on the working of the Government Central Museum contains matter of much interest and shows that satisfactory progress was made in all branches

of the institution. Since the close of the year Mr. Thurston has been temporarily transferred to Calcutta to officiate for Dr. Watt as Reporter on Economic Products, and the museum is now in charge of Dr. Warth of the Geological Department, who was deputed to the Madras Presidency for this purpose by the Government of India.

2. As compared with the previous year, there was a slight decrease in the total number of visitors to the museum and a marked falling off in the number of gosha visitors, while the number of people who resorted to the Library was 6,235 as against 6,684 in 1889–90. It is presumed that these decreases cannot be ascribed to any special cause, and it is observed that the total number of visitors registered was higher than in any of the previous four years with the exception of 1889–90.

3. The expenditure during the year amounted to Rs. 27,247, or to Rs. 368 more than that incurred in the previous year, and to Rs. 353 less than the revised estimate. This increase was principally due to increased charges under the heads "Superintendent's pay" and "Cost of specimens," which together amounted to Rs. 14,420, or to Rs. 5,420 more than in the previous year, while the expenditure under the other heads fell from Rs. 17,879 to Rs. 12,827.

4. In conclusion, His Excellency the Governor in Council desires to express his appreciation of Mr. Thurston's administration of the museum during the year under review, and to tender his thanks to the various gentlemen by whom contributions were kindly sent.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

To the Superintendent, Government Central Museum.
„ the Public Department.
„ E. Thurston, Esq.
„ the Commissioners of Land Revenue.
„ the Commissioner of Revenue Settlement, Land Records and Agriculture.
„ the Accountant-General.
„ the Surgeon-General with the Government of Madras.

No. 815A.

Copy to the Government of India, Revenue and Agricultural Department.

(Signed) C. A. GALTON,
Secretary to Government.

Exd. S. J. Pereira.

200 Copies.

Govt. of {1891} Madras.

REVENUE.

Issued

Recd. *Encl.*

G.O., 2nd September 1891,
Nos. 815, 815A.

SEPTEMBER.

Government Central Museum.

Reviewing the administration report of the —, Madras, for the year 1890-91.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following paper:—

From DR. H. WARTH, Officiating Superintendent, Government Central Museum, Madras, to the Secretary to Government, Revenue Department, dated Madras, 31st May 1892, No. 477 :—

I have the honour to submit to the Right Honorable the Governor in Council my report on the working of the Government Central Museum during 1891–92; I also have the honour to request that I may be supplied with 80 copies for distribution to other Museums, &c. I should be glad also to go through the proof of the report before it is struck off, and I will at the same time be able to add the Geological map of the Madras Presidency which is being photo-zincographed.

ADMINISTRATION REPORT OF THE GOVERNMENT CENTRAL MUSEUM FOR THE YEAR 1891–92.

1. VISITORS TO THE MUSEUM.—The statistics of the number of visitors are given in appendix A. The total number was 361,452 against 364,542 in the previous year. This is a small decrease, considering the great amount of sickness during part of the year and the drought.

The number of gosha visitors was 1,409 against 1,457 in the previous year.

The following statement shows the number of visitors to the Museum during the last five years :—

1887-88	264,182
1888-89	337,801
1889-90	378,234
1890-91	364,542
1891-92	361,452

On two days of the year it is customary for Hindus to visit the Museum in large numbers. On the 11th January there were 12,121 visitors and on the 15th, 37,211.

Fifteen students of the Saidápet Normal School, Muhammadan Branch, visited the Museum, and prizes were given by the school authorities for the best paper on the Museum written in Hindustani.

2. DONATIONS TO THE MUSEUM.—All donations were exhibited in special glass cases in the sculpture gallery for six months previous to their being distributed over their respective galleries. A list of the donations of specimens will be found in appendix B.

Books and periodicals presented to the Library will be found in appendix C.

3. BUILDINGS AND GROUNDS.—The railing of the miscellaneous gallery upstairs being considered unsafe during a throng of visitors, was raised from 34 to 48 inches. Trouble was experienced with plaster cornices which fell in 2 galleries doing damage to butterflies and to shells. A temporary shed was erected for exhibiting the skull and jaw bones of the sperm whale (*Physeter macrocephalus*) and of a whalebone whale (*Balænoptera Indica*), because there is not room in the building.

4. PUBLICATIONS.—The catalogue of the Library has been completed in manuscript, Edgar Thurston, Esq., himself having completed this work. It is now in the Press.

A large Geological map of the Madras Presidency was made for the mineral gallery and a copy on a smaller scale was given to be lithographed by the Revenue Survey Department.

5. TOURS.—The Officiating Superintendent made the following excursions:—

To the Shevaroys for consulting R. Bruce Foote, Esq., about the Geological map of the Madras Presidency.

To Kurnool to visit the steatite mines of Mudwaram in company of Dr. W. King, Director of the Geological Survey of India.

To Nellore twice to visit the Mica Mines.

To Chingleput for inspection of iron ore.

To Trichinopoly where a deposit of phosphatic nodules was discovered.

To Salem district to accompany T. H. Holland, Esq., of the Geological Survey, who was deputed to report on iron for the London Imperial Institute.

Some account of these journeys and of the tin district in Burma will be found in appendix D.

The taxidermists visited the Shevaroys for birds and insects and they also accompanied a private shooting party to the Peermad Hills.

The herbarium-keeper made a collection of cotton plants and produce of the Madras Presidency for the London Imperial Institute and travelled for the purpose in the cotton-producing districts of Kistna and Coimbatore and he also went to Bangalore.

6. ART GALLERY.—Besides minor additions to the art gallery, a collection of articles was procured illustrating the ethnology of the Todas (a hill tribe of the Nílgiris).

7. ETHNOLOGY AND ANTIQUITIES.—Sculptured marbles from Amarávati in the Kistna district are now on the spot to the extent of over 300 pieces having a total superficial area of 1,200 square feet. It appears best to exhibit this large collection in the open air perhaps under the shelter of an arcade.

A few sculptured gneiss blocks were washed out by the sea on the beach of St. Thomé. They are exhibited in front of the Museum, but they bear no inscription to determine their age by. Small gold and copper coins which were also washed out do not indicate the age either.

A collection of 208 stone implements chiefly from Bellary was lent to the Museum by H. Gompertz, Esq., and is exhibited with the antiquities.

The Museum received seven copper plates with Vizianagara inscriptions which were found in the village of Satyamangalam in the Vellore taluk. They date partly from Krishnaraya Saka 1448 and Achyata Saka 1203.

A collection was made for the Berlin Ethnological Museum of weapons, agricultural implements, of ornaments and of a boat as a model—altogether 61 samples.

Mr. C. E. Cardew discovered figures scratched on ancient pottery which he had exhumed from the tombs at Guntakal. Some of the figures have the appearance of alphabetical letters and agree well with each other, but others only consist of 2 or 3 radiating lines. It is therefore possible that the figures are owners' marks made at random and not taken from an alphabet. A copy of 20 figures with sketches of the pottery was sent to Mr. Cardew to Burma.

8. HERBARIUM.—The herbarium-keeper, as already mentioned, collected specimens of cotton plants, cotton and cotton fabrics for the Imperial Institute. He obtained 8 species and varieties of gossypium and fabrics from most of them, also other specimens for the herbarium. He went through 92 orders of plants in the herbarium and re-poisoned them. He also mounted 380 plants and arranged them; further he arranged a portion of the Egyptian plant collection.

Samples of timber were identified for the Madras Railway. They were mostly Burmese specimens and the want of a good collection of Burmese woods was felt.

Herbarium specimens of 35 orders were sent to Mr. M. A. Lawson, the Government Botanist, for revision and returned. A further batch of 22 orders was sent to him and it is expected that in the course of a few years the whole collection will thus be looked over and catalogued.

Dr. G. King, Superintendent, Royal Botanical Gardens, Calcutta, presented 86 dried specimens of plants from Assam, Malay Peninsula, Andamans, &c.; also a fruit of Talauma Hodgsoni. The head taxidermist also brought 36 plants from his tour in Travancore. Printed zinc labels were fixed to 74 trees in the Museum compound.

Mr. J. S. Gamble's collection which the Museum received during the year comprised 1,030 herbarium specimens, 920 wood specimens, 30 bamboos, 40 fibres,

350 pods, seeds and fruits, 95 specimens of gum, resin and a variety of, strictly speaking, economic produce.

9. Economic Products.—Mr. J. S. Gamble's collection of forest produce must be mentioned also under this head. Amongst the wood specimens are many useful timber-trees in slabs and in polished sections, ornamental woods of palms and ebony; also large samples of sandal and sandal-wood carvings. Bamboos are of all sizes and there is very fine basket-work of split bamboo. Gum and resins have already been mentioned, and amongst the pods, seeds and fruits are many of economic value. A number of perishable fruits are preserved in alcohol.

A large collection of economic products was received from Edgar Thurston, Esq., in all 409 specimens, derived from 117 species of plants. All parts of the plants are represented—root, wood, bark, flowers, fruits, seeds.

Further, there are fibres, gums, catechu, drugs, dyes, oils, pickled fruit.

Of cocoanut, there are many manufactured articles, brushes, sacks, ropes, mats, trays.

Jute is exhibited in many qualities. Areca catechu wood worked into dishes, cups, sticks. Bamboo worked into sieves. *Borassus flabelliformis* worked into vases, brackets, &c.

From the Inspector-General of Ordnance were received samples of fibre of the Kóttayam sago palm (*Caryota urens*) which is used for brush-making.

10. Mineral Gallery.—The gallery was arranged so as to allow for 58 glass cases with 3,000 Indian samples and 1,350 European specimens of fossils which latter had been put by, but which were again arranged and exhibited for the benefit of students of Geology. Geological lectures were started at the Presidency College, and for this reason it is also desirable to provide a general Geological collection of the Madras Presidency and of other parts of India.

The cretaceous fossils of the Trichinopoly district, the Upper Gondwana plants presented by R. Bruce Foote, Esq., the raised reef fossils from Pámban and a few other specimens will help to make a beginning.

The mineral gallery was augmented as follows:—

A collection of black pottery and of many articles manufactured of potstone obtained from Mysore.

A glass case with crushed conglomerate from the Hyderabad Diamond mines. Steatite of superior quality from Mudwaram (Kurnool district).

Mica from Mr. E. H. Sargent's mine at Inikurti in the Nellore district. Specimens of superior quality, a clear plate 18 inches by 24 inches. Two large plates uncut, 30 inches by 30 inches and $1\frac{1}{4}$ inches thick. Cleavage pieces of great mineralogical interest. A regular triangle, natural, of 60 degrees angle, 4 inches side and 1 inch thick, also rhombus, ribbons, &c.

(For details see appendix D).

Of iron ore and iron there is already so much exhibited from so many places in the Madras Presidency that very little could be added after the Officiating Superintendent's tour to the Salem district. From the Chingleput district a block of magnetic iron ore was brought weighing 4 cwt. For details see appendix.

The visit to the fossiliferous cretaceous rocks of the Trichinopoly district resulted in the discovery of a deposit of phosphatic nodules. One square mile, which was more closely examined, was estimated to contain one pound lying loose on every 10 square feet of the surface. Four specimens were analysed and found to contain phosphoric anhydride enough for 61 per cent. calcium phosphate. A general mixture from half a ton heap gave 51 per cent.

A collection of very good manganese ore was presented by H. G. Turner, Esq., from Vizagapatam. This gentleman also presented corundum from the Coimbatore district, which was in very good six-sided crystals and so much more welcome as there is much inquiry after corundum deposits of the Madras Presidency.

Messrs. Leighton and Co. of Madras presented the Museum with specimens of clay brought from depths between 300 and 310 feet below the surface at the boring at Place's Gardens near Arkónam. The clays are of dark colour and some give traces of bitumen, some of sulphur.

Further specimens were recognized as apatite (by Mr. J. H. Brougham from the Utkur Mica Mines), weathered basalt, black clay charged with vegetable matter,

garnets, quartz crystals (out of the Bellary-China clay). Eight specimens of pebbles, 55 feet below the bed of Papaghiri river (Cuddapah district), were sent by H. C. West, Esq. They proved to be mostly dolomite in a state of decomposition so as to leave a core of intact dolomite surrounded by a soft siliceous residue of the dolomite which had been deprived of all its carbonates.

The Municipality of Rajahmundry sent from the local Museum 86 specimens of recent and fossil shells, &c., for identification.

11. NATURAL HISTORY.—Beetles and butterflies were collected in the districts of Salem (Shevaroys) and Trichinopoly.

His Excellency the Governor presented the Museum with a beautiful specimen of hornet's nest (*Vespa cincta*).

A fine specimen of a spider (*Mygale species*) was presented by H. R. P. Carter, Esq.

A large collection of beetles from the Shevaroy Hills, the Nílgiri and Mysore was sent to the British Museum for identification.

The following fish, all from the Madras Coast, were preserved during the year:—

In glycerine.—Saurida tumbil, Lutjanus rivulatus, Lutjanus decussatus, Chætodon vagabundus, Lethrinus karwa, Pterois miles.

In alcohol.—Muræna punctata, Diagramma pictum, Echeneis naucrates, Dactylopterus orientalis, Fistularia serrata, Platophrys pantherina, Gastrotoceus biaculcatus, Tetrodon stellatus.

Stuffed.—Serranus lanceolatus, S. salmoides, S. bœnack, Lutjanus rivulatus, Diagramma cuvieri, Drepane punctata, Holocentrum rubrum, Platycephalus insidiator, Pseudoscarus rivulatus, Psettodes erumei.

A model frame is under construction for mounting the big shark (Rhinodon typicus) which was referred to in last year's report, as it requires to be cured by immersion in a solution.

Snakes.—Amongst other snakes presented to the Museum was a good specimen of Echis carinata (Mr. Holland), also a Daboia elegans, Carpet snake (Col. T. Weldon).

Mounting all the mammals and birds on new stands has now been completed.

Mammals.—The following mammals were exhibited:— Lepus nigricollis, black-naped hare; Gerbillus Indicus, the Indian antelope rat; Sciurus Indicus, the large Indian squirrel; Viverricula Malaccensis, the small Indian civet; Tupaia Elliotti, the Madras tree-shrew (presented by Mr. W. M. Daly); Mus Blanfordi, the white-tailed rat (presented by the late Mr. B. Daly, Yercaud); Steno perniger (Elliot's Dolphin) 8 feet long.

Birds.—H. R. P. Carter, Esq., presented a rare specimen of a black bittern (Ardetta flavicollis).

The following 63 species of birds from Madras and the Shevaroy Hills were stuffed and placed in the bird gallery:—

Poliornis teesa	White-eyed buzzard.
Haliastur Indus	Maroon-backed kite.
Milvus Govinda	Common Pariah kite.
Syrnium sinense	Mottled wood owl.
Ninox scutellatus	Brown hawk owl.
Cypselus affinis	Common Indian swift.
Caprimulgus Indicus	Jungle night-jar.
Halcyon fuscus	White-breasted kingfisher.
* Palæornis rosa	Rose-headed parrakeet.
* Picus Mahrattensis	Yellow-fronted woodpecker.
* Chrysophlegma chlorophanes	Yellow-naped woodpecker.
* Micropternus gularis	Southern Madras rufous woodpecker.
* Megalaima caniceps	Common green barbet.
Cuculus canorus	European cuckoo.
Cuculus micropterus	Indian cuckoo.
Hierococcyx varius	Common hawk-cuckoo.
Coccystes melanoleucos	Pied-crested cuckoo.
* Dendrophila frontalis	Velvet-fronted blue nuthatch.
* Upupa nigripennis	Indian hoopoe.
Tephrodornis pondiceriana	Common wood shrike.
* Vovlocivora Sykesii	Black-headed cuckoo shrike.

Those marked * from the Shevaroys.

* Graucalus Macei	Large cuckoo shrike.
* Pericrocotus flammeus	Orange minivet.
* Chaptia ænea	Bronsed drongo.
Tchitrea paradisi	Paradise flycatcher.
* Cyornis banyumas	Horsefield's blue redbreast.
Pitta Bengalensis	Yellow-breasted ground thrush.
* Geocichla cyanotus	White-winged ground thrush.
* Turdulus Wardii	Ward's pied blackbird.
* Merula simillima	Nilgiri blackbird.
* Pomatorhinus Horsfieldii ...	Southern scimitar-babbler.
* Malacocircus Malabaricus ...	Jungle babbler.
* Layardia subrufa	Rufous babbler.
* Otocompsa jocosa	Red-whiskered bulbul.
* Phyllornis Malabaricus	Malabar green bulbul.
* Iora zeylonica	Black-headed green bulbul.
* Irena puella	Fairy blue bird.
Oriolus kundoo	Indian oriole.
* Oriolus Ceylonensis	Southern black-headed oriole.
* Copsychus saularis	Magpie robin.
* Calobates sulphurea	Grey and yellow wagtail.
* Zosterops palpebrosus	White-eyed tit.
* Dendrocitta rufa	Common Indian magpie.
Acridotheres tristis	Common myna.
* Acridotheres fuscus	Jungle myna.
Temenuchus pagodarum	Black-headed myna.
Munia Malacca	Black-headed munia.
Estrelda amandava	Red wax-bill.
Passer Indicus	Indian house sparrow.
Alauda gulgula	Indian sky-lark.
* Turtur Suratensis	Spotted dove.
* Chalcophaps Indicus	Emerald ground dove.
* Galloperdix spadiceus	Red spur foul.
Coturnix communis	Large grey quail.
Squatarola helvetica	Grey plover.
Ardetta flavicollis	Black bittern.
Anas poecilorhyncha	Spotted billed duck.
Kroikocephalus ichthyætus ...	Great black-headed gull.
Xema brunnicephala	Brown-headed gull.
Sterna hirundo	European tern.
Thalasseus cristatus	Large sea-tern.
Thalasseus Bengalensis	Smaller sea-tern.

Those marked * from the Shevaroys.

12. Numismatics.—During the year the Museum has received an unprecedented accession of South Indian coins, the collection of the late Mr. T. M. Scott of Madura having been offered for sale. This valuable collection, the fruit of life-long patient labour of an ardent numismatist, was made over to the Government Epigraphist, Dr. Hultzsch, and under his superintendence Mr. C. Rajagopalachari examined it very carefully. The good coins were mixed up with a great many useless ones, which swelled the whole number to 12,000. Dr. Hultzsch recommended the purchase of 508 coins distributed as follows:—

Gold coins—Fanams	3
Silver coins—Buddhist	1
Fanam	1
Copper coins—	
Buddhist	41
Pallava	17
Ceylon	24
Chola	40
Pandya, Madura Nayakas	107
Setupati	37
Srivira	157
Vijayanagara	37
Walajah	11
So-called Chera	6
Miscellaneous	26
Total ...	508

Dr. Hultzsch remarks on the coins as follows :—

"The sets of Buddhist, Ceylon, Chola, Pandya and Setupati coins are specially valuable on account of their completeness. Among the Chola coins I would note specimens with the legends Gangoi-Konda-Chola, Rajendra-Chola and Uttama-Chola.

Among the Pandya coins are six good specimens of the Boar-type of Sundara-Pandya, and among the issues of the Nayakas of Madura three different types of Visvanatha. The Pallava coins are not numerous, but part of them bear well preserved legends. Among the Vijayanagara coins are two unpublished issues of Sadasiva, and two of Mallikarjuna. Even those coins of the present list, which are already represented in the Government Central Museum collection, will form a valuable addition to it as most of them are in an unusually good preservation."

As will be found in the list of donations (appendix B), the Museum is indebted to the Asiatic Society of Bengal and to its Bombay Branch for many coins of Northern India received during the year.

General G. G. Pearse also handed over a donation of 24 Arracan coins from the collection of the late Colonel Fryer, Madras Army.

13. LIBRARY.—The number of visitors to the Library during the year was 6,298 against 6,235 in 1890–91.

The additions to the Library were as follows :—

	Works.	Volumes.
* Donations of standard works	80	194
* Donations of periodicals	13	155
Reports and other papers presented by Government ...	85	133
Purchased standard works	149	189
Purchased periodicals	33	487
Publications of the British Museum	8	8
Oriental series of Trubner	2	2
Papers of the Patent Office	4	93
Records of the Master of the Rolls	11	13
Parliamentary Blue-books	86	44
Total ...	439	1,330

* For a list of all donations to the Library see appendix C.

GOVERNMENT CENTRAL MUSEUM,
EGMORE,
Madras, 31st *May* 1892.

(Signed) H. WARTH,
Offig. Supt., Govt. Central Museum.

APPENDICES.

A.

Visitors to the Government Central Museum during the year 1891–92.

Total number of visitors in each month :—

April	24,305	November	23,399
May	29,937	December	34,328
June	28,218	January	73,437
July	32,241	February	24,911
August	22,513	March	28,836
September	20,173		
October	19,154	Total ...	361,452

Of these were men and boys 52 per cent., women and girls 48 per cent.

Of these 361,452 visitors, the following numbers signed their names in—

English	27,251	Nagari	86
Tamil	25,021	Maharatta	71
Telugu	7,733	Bengali	59
Hindustani	3,699	Chinese	15
Canarese	719	Singalese	3
Malayalam	671		
Goojeratti	662	Total ...	65,990

The remaining (82 per cent.) could not write their names.

B.

LIST OF SPECIMENS PRESENTED TO THE GOVERNMENT CENTRAL MUSEUM DURING THE YEAR.

Augustin, E., Pillai, M.R.Ry.—
Palæornis rosa (the rose-headed parrakeet); Megalaima caniceps (the common green barbet); Pericrocotus flammeus (the orange minivet); Phyllornis Malabaricus (the Malabar green bulbul).

Brougham, J. H. B., Esq., District Forest-officer, Nellore—
The following minerals from the Mica Mines in the Nellore district: Apatite, Mica, Tourmaline, Garnet. Fibre material. Fibre of the common aloe, of Sida acuta, of Calotropis gigantea. Also Venapullaloo root (Aristida species).

Cardew, A. G., Esq., C.S.—
Nests of the following birds from the Nilgiris. Oreocincla Nilgiriensis (the Nilgiri thrush); Trochalopteron cachinnans (the Nilgiri laughing thrush).

Carter, H. R. P., Esq., Chetput.—
A very rare specimen of the black bittern (Ardetta flavicollis), an owl, a flying lizard (Draco dussumieri), a spider (Mygale species), a number of insects from the Palni Hills. Two white ant queens; a specimen of wood (Berrya ammonilla).

Daly, B., Esq., Maryland estate, Shevaroy Hills—
Tupaia Elliotti (the Madras tree-shrew); Mus Blanfordi (the white-tailed rat); Hierococcyx varius (the common hawk-cuckoo); Irena puella (the fairy blue-bird); Oriolus Ceylonensis (the southern black-headed oriole); Crocopus chlorigaster (the southern green pigeon); Chalcophaps Indicus (the bronze winged dove).

Daly, William Mahon, Esq.—
Collection of snakes, lizards, frogs, &c., from the Mysore Province.

Dunlop, J., Esq., Civil Apothecary, Yercaud—
Zosterops palpebrosus (the white-eyed tit).

Duraisawmy, A. S., Pillai, M.R.Ry., Head Taxidermist, Govt. C. Museum, Madras—
Thirty-six plants collected at Wagamund, Travancore.

Gaye, W., Esq.—Holi sicca rupee.

Haller, J., Esq., Assistant Superintendent of Survey, Mercara—
Eight logs of wood as specimens of South Indian trees.

Havell, E. B., Esq., Superintendent, School of Arts—
China clay from Tievandrum; quartz crystals from Bellary.

His Excellency Lord Wenlock, G.C.I.E., Governor of Fort St. George—
Nest of hornet (*Vespa cincta*).

Holland, T. H., Esq., Assistant Superintendent, Geological Survey of India—
2 Mammals—
Macacus sinicus (The bonnet monkey). Pteropus medius (The Indian flying fox).
31 Specimens of birds of the following species:—
Haliastur indus (The maroon-backed kite). Athene brama (The spotted owlet). Merops viridis (The Indian bee eater). Coracias indica (The Indian roller). Palæornis torquatus (The rose-ringed parrakeet). Xantholaema indica (The crimson-breasted barbet). Centropus rufipennis (The common coucal). Upupa nigripennis (The Indian hoopoe). Lanius Lahtora (The Indian grey shrike). Tchitrea paradisi (The paradise fly-catcher). Malacocircus griseus (The white-headed babbler). Otocompsa jocosa (The red-whiskered bulbul). Pycnonotus haemorhous (The Madras bulbul). Oriolus kundoo (The Indian oriole). Acridotheres tristis (The common myna). Turtur Suratensis (The spotted dove). Himantopus candidus (The stilt). Ardeola leucoptera (The pond heron).
2 Reptiles (snakes)—Tropidonotus quincunciatus. Echis carinata.

Honorary Secretary, Bombay Branch, Royal Asiatic Society, Bombay—
Gold fanam, gold coin (Padmatanka), 3 silver coins, coin of mixed metal.

Honorary Secretary, Asiatic Society of Bengal—
Coin of impure gold of kida type, North-West Provinces.
6 Coins found in the Buldana district.
12 Silver rupees of the Moghul Emperors of Delhi.
13 Silver Moghul rupees. 4 Silver Afghan rupees.
*6 Silver coins, 2 copper coins.

Inspector-General of Ordnance, Fort St. George —7 Samples of brush-making materials.

Iyah Pillai, Mrs. E.—Nest of Munia striata (the white-backed munia).

Iyah Pillai, Mr. M. S., Hospital Assistant, Yercaud—
Dendrophila frontalis (The velvet-fronted blue nuthatch). Malacocircus Malabaricus (The jungle babbler). Otocompsa Jocosa (The red-whiskered bulbul). Pycnonotus haemorhous (The Madras bulbul). Zosterops palpebrosus (The white-eyed tit).

Joss, W., Reverend —
Magnetite and pleonast sand and rice shaped quartz sand from the sea-shore near Cape Comorin.

King, Dr. G., Superintendent, Royal Botanical Garden, Calcutta—
86 Herbarium specimens of plants from Assam, the Malay Peninsula, Andamans, &c.
A specimen of the fruit of Talauma Hodgsoni.

Kistna District, Collector of—50 Pewter coins.

Kristnasawmy Mudaliyar, M.R.Ry., St. Thomas' Mount—
Homraius bicornis (Head of great horn-bill).

Leighton, D. W., Esq., Madras—
Clay from the boring near Arkónam between 300 feet and 310 feet from the surface.

Mahomed Kasim—A garnet.

Middlemast, E. W., Esq —Lycodon aulicus (A snake from Madras town).

Monsieur Jules de la Fon, Villupuram—
Ascaria labiota (A parasite of the eel).

Municipal Commission, Madras, the President—
A leopard (Felis pardus), the Tasmanian sarcophilus, a South Indian hedgehog (Erinaceus micropus), and a cockatoo.

Pearse, General G. G.—24 Silver coins from Aracan (from the collection of the late Colonel Fryer, Madras Army).

Post Master General, Madras—Madras Presidency map, 8 feet by 9 feet.

Rahm, C., Esq., Yercaud—
Palæornis rosa (The rose-headed parrakeet). Megalaima caniceps (The common green barbet). Phyllornis Malabaricus (The Malabar green bulbul). Oriolus Ceylonensis (The southern black-headed oriole). Dendrocitta rufa (The common Indian magpie). Ant's nest, centipede, scorpion.

Sargent, E. H., Esq.—
Specimens of Mica from his mines at Inikurti in the Nellore district. Kaolin and felspar from the same.

Smart, Major, R.E.—
Garnets in hornblende shist.

Smith, C. A., Esq.—Ceryle rudis (The pied kingfisher).

South Arcot District, Collector of South Arcot—Silver coins.

Taylor, R. S. M., Mr., Poodoopet—Copper coin.

Turner, A. W., Esq.—
Specimens of decomposing felspar, siliceous rock and peaty soil from Devikolam, North Travancore, 5,678 feet above sea level. Quartz from Marior Ghât.

Turner, H. G., Esq., C.S.—Numerous specimens of manganese ore from the Vizagapatam district. Corundum from Coimbatore.

Venkatagiri, *ex*-Rajah of Venkatagiri—
38 gold, silver and copper coins from St. Thomé.

Venkatarungam, A., Naidu, M.R.Ry.—A caterpillar of a moth.

Weldon, Colonel T., Commissioner of Police, Madras—Daboia elegans (Carpet snake).

West, H. C., Esq.—
Worm (Filaria papillosa) from the eye of a pony.

C.

DONATIONS TO THE LIBRARY.

Standard works.

Agricultural Department, Bulletins, Nos. 19 to 22—Tinnevelly cotton, gingelly crop, Italian rice, Telugu proverbs.

American Museum of Natural History, Bulletin, 1890.

Archæological drawings—52 Plates and Texts, 1889—91.

Asiatic Society, Bengal—General Rules and Library Rules, 1888 and 1889.
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Belding, L.—California Academy. Land birds, Pacific district, 1890.
Bigot.—Diptera of the Oriental Region, Indian Museum, 1891.
Brazier, J.—Marine Shells of Australia and Tasmania (Cephalapoda), 1892.
Brazier, J —Cephalapoda in Sydney Museum, 1892.
Brendel, R.—List of Models concerning Vegetable Morphology, 1891.
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Cope, E. D.—Geological Survey of Canada, Palæontology, 1891.
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Day, C. R.—Music and Musical Instruments of Southern India and Deccan, 1891.
Distant, W. L.—Oriental Cicadidæ in the Indian Museum, Calcutta, 1891.
Dutt, R. C.—History of Civilization in Ancient India, People's Edition, 1891.
Eigenmann, C. H. and R. S.—California Academy, South American Nematognathe, 1890.
Eliot, J. J.—Indian Meteorological Memoirs, Vol. 4, Part 7, 1891.
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Jacob, C. S. S., Jeypore—Port-folio of Architectural Details, Parts 1 to 6, 1890.
Jaeger, G.—Health Culture, 1891.
Janeiro—Museum papers (Geological) for 1887.
Jones, T. R.—Canadian Micro-Palæontology, Part 3, 1891.
Lucknow Museum—Minutes of the Managing Committee, 1889.
Madras Agri-Horticultural Society's Catalogue of Plants, 1884.
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Madras Observatory—Meridian Circle observations, 1868 to 1873, 2 volumes.
Madras Survey Office—List of maps for sale, 1891.
Markoff, A. De.—Registre General Des Monnais Orientales, 1891.
Markow, A. K.—Coins, St. Petersburg, 1892 (In Russian).
Medicus, Dr. L.—Chemical Analysis, 1887 (In German).
Merriam, Dr. C. H.—North American Fauna, No. 5, 1891, 3 copies.
Meteorological observations at Simla, 1841—45, Vol. 2nd, 1877.
Miskin, W. H.—Annals of Queensland Museum, 1891.
Mohideen Sheriff Khan Bahadoor, of Madras—Materia Medica, Vol. 1st, 1891, 2 copies.
Moore, F.—Lepidoptera Indica, Parts 6 to 8, 1891, 3 copies.
Mukharji, T. N.—Art manufactures of India, 1888.
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D.

NOTES ON MINERALS.

Tin.

As previously mentioned, a collection of specimens was exhibited from the Burmese Tin Regions. They come from the southern half of the district of Mergui which forms the upper end of the Malayan Peninsula. The tin-bearing deposits are of two kinds. There is firstly the tin gravel which is found in all or most of the valleys, a mixture of rough white quartz pebbles with sand, garnet, black tourmaline and grey cassiterite. The thickness of the gravel varies from 1 to 6 feet and the yield of cassiterite may be put down as at least ¼ per cent. or 1 pound of cassiterite (tin dioxide) in 400 pounds of gravel. There are washings going on at many places, but some valleys have been more or less exhausted. The work suffers also under the disadvantage that the greater part of the country is quite uninhabited, that food has to be brought from a distance and that there is always danger of sickness. Chinamen are the chief workers. The second kind of tin-bearing deposit is the original eruptive rock which is weathered so that it is possible to wash out the grains of whitish cassiterite which it contains. I visited the principal deposits of this kind near Malewun in July 1891. I took samples from several excavations and washed them. The results are stated with the samples in the collection. The mean is a yield of only 0·04 per cent. of impure wash tin. Thus one pound of impure tin dioxide requires 2,500 pounds of weathered rock. The rock is traversed by a series of parallel veins of white quartz indicating the origin of all the white quartz pebbles in the tin-bearing gravels, these gravels being nothing but the accumulation, during probably thousands of years, of the washings from the elevated outcrops of tin-bearing eruptive rock. The original tin-bearing deposit of weathered rock is being and has been washed since a good many years. It requires a very good supply of water and very large deposits, otherwise the labour would be far too great and such works could not compete with those in the gravels. Amongst the rock specimens of the district are also grey limestones from Mount Tampra 3 days canoe journey from Lenya. This mountain I found fringed with caves which most likely owe their origin to the action of the sea. As they are now 160 feet above the sea, it appears that the land has been raised that much in comparatively recent time. If so, then the time during which most of the tin gravels formed was also comparatively limited.

Kurnool Steatite.

I accompanied Dr. W. King, Director of the Geological Survey of India, when he inspected the steatite mines in the Kurnool district. They are situated 7 miles from the Southern Mahratta Railway station of Betamcherla, near the village of Mudwaram, and about 21 miles south or south-south-east of Kurnool town. The neighbourhood is within the area of Dr. King's Cuddapah Series of unfossiliferous palaeozoic rocks. Scattered over half a mile, there are excavations in a dolomitic rock which contains thin layers of steatite. Some of the dolomite is grey and massive, but in the mine which we visited the whole of the rock was a white chalky dolomite, very soft and easily pulverized, a poor material for the support of the roof of the mine. The mine consisted of an inclined heading of 100 feet length and the steatite had thinned down at the end to 3 inches, whilst the miners had before obtained blocks of 6 inches thickness. The steatite is of highly superior quality. It feels greasy and is semi-transparent at the edges. This steatite had been decided on by the Geological Survey and later on by experts in London as yielding the best stone for the manufacture there of gasburners (see Dr. W. King's remarks in the Geological Survey Records, Part I of 1892). The presence of so much dolomite and in a peculiar powdery state has very likely a connection with the formation of the steatite.

The Mica mines in the Nellore district.

With the permission of the Madras Government, Revenue Department, I paid a visit to Mr. E. H. Sargent's mica mine at Inikurti and also to similar mines near Utkur, situated respectively 19 miles west-south-west and 25 miles south west of Nellore station. As a glance at the Geological map of the Madras Presidency will show, the mines lie within the area of metamorphic rocks. They are in intrusions which occur in the mica shists and consist of mica, quartz and a white felspar, probably oligoclase. The three minerals either form a coarse grained granite, or else they form large separate masses, the blocks of quartz having 30 feet diameter, the felspar 15 feet, and the masses of mica, 5 feet diameter. Mr. Sargent has worked out mica in compact blocks of 150 cubic feet each. I saw the remains of a continuous layer of mica, 35 feet long and 2 feet thick.

Mr. Sargent's mine is an open pit of horse-shoe shape. The depth is 60 feet or more in the centre, the mean length is 200 feet and the total width 100 feet. The pit encloses a mass of quartz which is not worked out and gives it the shape of a horse-shoe. The large mica appears chiefly associated with the felspar. Mr. Sargent obtained from the pit 20 tons of pure ready-cut mica during two years' working. Some of the felspar in Mr. Sargent's pit is weathered into snow-white kaoline. I did not see such entirely weathered felspar at any of the Utkur pits.

It appears that the first indication of this valuable deposit was the ridge of quartz which stands 8 feet above the surface of the surrounding ground. It is very likely that similar deposits exist in the neighbourhood, but this can only be proved by trial excavations. The other mines which are situated near the village of Utkur form quite a group of more or less successful excavations. The mica is associated with the same white quartz and whitish felspar. I saw very large masses of either of these rocks being blasted away in the hope of the mica being found underneath them. There was also one large worked-out pit, called Palamani, 100 by 100 feet, and with a depth of about 50 feet. It was also somewhat of horse-shoe shape, a large mass of felspar having been left standing in the middle. In other pits of this group blasting was going on in bulky deposits of quartz and in others of felspar, showing the confidence which the people had of getting into good mica. One mine called Sukhagini (Black stained mine) produces mica stained black and brown through thin layers of magnetite (it has been found that the very thin layers of magnetite are brown in transmittent light). Very beautiful slabs of mica, 27 by 32 inches, without any cracks were rendered almost worthless by magnetite. The sorting of the mica is of much importance. Of the mica brought to Mr. Sargent's stores at Inikurti, only about 23 per cent. are finally selected for export. Everything else is rejected, and at the mines there are other huge waste heaps of mica left. It is a pity that this material cannot be utilized for some other purpose. The selected pieces of good quality are all cut after certain standard patterns. Pieces of the same pattern are tied in bundles and so sent to England. The larger the pieces are, the higher is the price per pound which they fetch at the brokers' auctions in London. From the sale accounts which Mr. Sargent allowed me to see, I calculated the following approximate rule. The mica fetches per pound weight as many times two pence as the pieces have square inches area. This equation holds good between 10 and 100 square inches.

The cracks which pass through the mica are sometimes straight and make certain angles with each other, most often 60° and 120°. This is the consequence of a property of the mica to give way to pressure in agreement with the crystallization, producing a kind of cleavage or rather sliding planes. There is ample opportunity for studying this phenomenon on a large scale at these mines. Regular triangles, rhombus of 60° and ribbons or long-drawn rhombus occur in large size and in great numbers. On some plates different figures are combined, being separated by narrow twinning bands. Very good specimens of this kind have been presented

by Mr. Sargent not only to the Madras Museum, but also to the Indian Museum at Calcutta and the Imperial Institute in London (for a longer report see G.O., 23rd January 1892, No. 448 and 448A).

Iron industry in the Salem District.

In company with Mr T. H. Holland, Assistant Superintendent, Geological Survey, I visited some of the seats of iron industry in the Salem district. I saw the deposits of iron ore near Namgiripet at the foot of the Kolimallais, near Nahempatti on the slope of Perumallai hill and near Singapuram. Inexhaustible as the supply of excellent ore is, I was somewhat surprised to find the great bulk of it banded with quartz in about equal volume. This produces a mixture containing two-thirds of its weight of magnetite. Layers of pure ore, 6 inches thick, were comparatively speaking rare. Excavations would no doubt reveal a greater number of pure layers, but for use on a large scale the ore would probably be crushed and mechanically separated from the quartz. The present industry on the small scale rejects altogether the bands and layers of solid magnetite and uses weathered magnetite shist which is found lying about the foot of the hills below the great iron seams. The weathered shist is quite soft, and the people are able to separate the grains of magnetite much more completely from the matrix than they could do with crushed banded magnetite. The smelting of the ore into blooms of wrought iron has often been described. The furnaces are 4 feet high and the blooms weigh 15 lb. The small scale of the work enables the people to get on with the most rudimentary appliances, but they did not seem to know any reasons for their various practices. All was done in a mechanical way. As a minor produce a kind of steel was obtained. Along with the blooms a kind of shot of carburized iron was found in the charcoal of the furnaces. This shot was collected and about two pounds of it melted. The blast was directed upon the melted mass and a portion of the carbon and impurities oxidised, leaving a small cake of raw refined steel. This is quite a different product and method from the so-called Wootz steel, which is a cast steel obtained by melting wrought iron and charred wood together in small crucibles. I saw the above method of steel making at Namgiripet. This is the largest iron manufacturing place which we saw. Here the work went on in February 1892, whilst at other places (Karipatti, Nahempatti, Tammampatti, Chandarapatti) it had come to a temporary standstill owing to the prevailing drought and scarcity. In one instance it appeared that the magnetic sand was also used which is almost everywhere noticed as a residue of the weathering gneiss. Such magnetic sand might be collected at almost every village of the metamorphic area without really representing a real iron ore deposit.

I also visited Chingleput and inspected with Mr. T. H. Holland a seam of magnetic iron ore which shows at the surface on the slope of a hill 3 miles south of the station. It occurs in the metamorphic area in garnetiferous gneiss. As already mentioned, a block of the ore weighing 4 cwt. was brought to the Museum. It is magnetite in which no foreign admixtures are visible and must be at least one yard in thickness, but it may be more as no regular exploration has taken place. This seam differs from the much larger seams examined in the Salem district. The small seam near Chingleput consists of massive ore throughout, whilst the large seams of Salem which are 50 and 100 feet thick are to the greater part a banded mixture of quartz and magnetite.

Phosphatic nodules of the Trichinopoly District.

In January 1892, I went to Trichinopoly for the purpose of collecting fossils for the Government Central Museum from the area of cretaceous rocks, which will be noticed on the Geological map of the Madras Presidency as a patch of green. I found that the lower strata of the cretaceous rocks contained besides fossils a very large quantity of phosphatic nodules. Near Naekolum they were 2 inches long, but near Numbikurchi they attained very large size, some 6 inches long and 3 inches in diameter. They were scattered over the ground in great abundance. As a result of centuries of weathering the clay and lime were washed away leaving the phosphates lying on the surface. I estimated one pound weight of nodules for every 10 square feet over an area of one square mile lying east of Nambikurchi, 21 miles north-east from Trichinopoly station. It remains to be seen how far the deposit extends over the rest of the cretaceous rocks and I hope to make a further examination during the coming cold season. I have obtained chemical analysis of 4 single specimens of nodules and of a mixture taken at random from a heap of half a ton. The single nodules contained phosphate of lime as follows: 57, 58, 64, 67 per cent., which gives a mean of 61 per cent.; the sample from the half ton 51 per cent. These nodules must have developed on the floor of the cretaceous sea in the same way as phosphatic nodules are forming in the sea at this present day. Nodules dredged by the Challenger south of the Cape of Good Hope from 900 feet depth contained 44 per cent. calcium phosphate and from 11,400 feet they contained 51 per cent. An expected complete analysis of the Trichinopoly nodules will show how far the composition is favorable as regards the presence of iron and alumina. The area of cretaceous rocks in Trichinopoly is a mere trifle compared with the area of such rocks in Arracan, Assam and Afghanistan, and after the present discovery it would not be surprising if these other places would also yield phosphates.

CLASSIFIED List of Expenditure of the Government Central Museum during the year 1891-92.

	Actuals, 1891-92.	Revised estimate, 1891-92.
Superintendent	6,850	8,725
Permanent establishment—		
First Assistant, Second Assistant, First, Second and Third Taxidermists, Herbarium-keeper, Artist, Writer, Librarian, Assistant Librarian, Head humal, Superintendent's peon—12 persons.	4,881	4,881
Travelling allowance	1,225	1,000
Cost of specimens, including also postal and telegram charges, office expenses and miscellaneous.	3,741	5,496
Temporary establishment—		
11 Humals, chickledar, 4 gardeners, collecting taxidermist, 2 sweepers, 3 watchmen, water-pandal brahmin, office peon, 2 punkah pullers, 26 persons	2,140	
Fittings and furniture	2,998	3,000
Books and publications	2,487	1,800
Purchase and repair of furniture	197	200
Binding books and lithographing plates	576	800
Rents, rates and taxes	1,098	1,098
Total ...	26,193	27,000

READ—official memorandum from the Secretary to Government, Revenue Department, to the Superintendent, Government Central Museum, dated 5th July 1892, No. 136.

ABSTRACT.—Requesting the Superintendent, Government Central Museum, to report how he has arrived at the figure Rs. 6,850 as the actual pay of the "Superintendent for 1891-92."

READ—G.O., dated 18th July 1892, R. No. 1599, Revenue.

ABSTRACT.—Recording letter from the Superintendent, Government Central Museum, dated 13th July 1892, No. 587, stating that a reference would be made to the Accountant-General as to the figure Rs. 6,850 given as the pay of the Superintendent.

READ—the following letter from DR. H. WARTH, Officiating Superintendent, Government Central Museum, to the Under Secretary to Government, Revenue Department, with the Governor, Stonehouse Hill, dated Egmore, 18th July 1892, No. 611 :—

In continuation of my letter, No. 587, of 13th July 1892, I have the honour to enclose, herewith, a statement in original furnished me by the Accountant-General showing particulars of Rs. 6,850 as actuals of the Superintendent's salary for 1891-92.

ENCLOSURE.

STATEMENT showing particulars of Rs. 6,850, being pay of the Superintendent, Government Central Museum, Madras, paid during the year 1891-92.

Date of payment.	Amount.	Particulars.
	RS.	
1st April 1891	750	Pay of Dr. E. Thurston for March 1891.
1st May ,, ...	750	Do. do. for April ,,
1st June ,, ...	750	Do. do. for May ,,
1st July ,, ...	750	Do. do. for June ,,
1st October ,, ...	350	Pay of Dr. H. Warth from 16th to 30th September 1891.
2nd November ,, ...	700	Pay of Dr. H. Warth for October 1891.
1st December ,, ...	700	Do. do. for November ,,
4th January 1892	700	Do. do. for December ,,
1st February ,, ...	700	Do. do. for January 1892.
1st March ,, ...	700	Do. do. for February ,,
Total ..	6,850	

N.B.—The pay of Dr. Thurston from 1st July to 15th September 1891 was paid at Calcutta.

ORDER—dated 3rd August 1892, No. 802, Revenue.

Miscellaneous.

The Superintendent's report shows that the administration of the Museum continued to be satisfactory. There was again a decrease in the number of visitors to the institution, but it was only slight and was possibly due, as the Superintendent suggests, to the bad season and the prevalence of sickness during the year. The number of visitors to the library showed a small increase as compared with the previous year's figure.

2. A sample of the phosphatic nodules found by the Superintendent in the Trichinopoly district has been sent to England to be analysed by an agricultural chemist and should the analysis be favorable, the discovery may prove of value to agriculturists in the shape of a cheap chemical manure.

3. The expenditure during the year amounted to Rs. 26,193 or Rs. 1,054 less than that incurred in the previous year and Rs. 807 less than the revised estimate. The decrease occurred chiefly under the head of the Superintendent's salary as explained in the enclosure to the last of the papers read in this Proceedings.

4. His Excellency the Governor in Council desires to take this opportunity of thanking those members of the public who assisted the Museum with donations of specimens and books.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

To the Superintendent, Government Central Museum, with 80 copies.
,, the Public Department.
,, the Commissioners of Land Revenue.
,, the Commissioner of Revenue Settlement, Land Records and Agriculture.
,, the Surgeon-General with the Government of Madras.

No. 802A.

Copy to the Government of India, Revenue and Agricultural Department.

(Signed) C. A. GALTON,
Secretary to Government.

Exd. A. Aubert.

160 Copies.

Govt. of {1892} Madras.

REVENUE.

Issued

Recd. *Encl.*

G.O., 3rd August 1892,
Nos. 802, 802A.

AUGUST.

**Government Central Museum,
Madras.**

Reviewing the administration report of the —
for 1891-92.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

From Dr. H. WARTH, Officiating Superintendent, Government Central Museum, to the Secretary to Government, Revenue Department, dated Madras, 28th April 1893, No. 513.

I have the honour to submit to the Right Honorable the Governor in Council my report on the working of the Government Central Museum during 1892–93.

ADMINISTRATION REPORT OF THE GOVERNMENT CENTRAL MUSEUM FOR THE YEAR 1892–93.

1. VISITORS TO THE MUSEUM.—The statistics of the number of visitors are given in appendix A. The total number was 341,238 against 361,452 in the previous year. The deficient number may have been due to the continued drought. The number of gosha visitors was 1,957 against 1,409 in the previous year.

The following statement shows the number of visitors to the Museum during the last five years :—

1888-89	337,801
1889-90	378,234
1890-91	364,542
1891-92	361,452
1892-93	341,238

On two days of the year it is customary for Hindus to visit the Museum in large numbers. On the 31st December there were 13,862 visitors and on the 14th January 40,301.

2. DONATIONS TO THE MUSEUM.—A list of the donations of specimens will be found in appendix B and of books and periodicals in appendix C.

3. BUILDINGS AND GROUNDS.—The Museum building and the Superintendent's house underwent general repairs during the year. A reservoir was erected near the taxidermist's room for use in macerating bones and preserving skins of large size. The downstairs hall of the Museum building underneath the mineral gallery was provided with windows for the better utilization of this reserve space. A single storied out-house on the north-east side of the Museum buildings was made into an office room to render the old office room available for the enlargement of the mineral gallery. The wooden roof verandah on the upstairs of the Superintendent's quarters was covered with a layer of Mangalore pattern tiles. A new shed was erected for placing in order and protecting from rain the large number of Amarávati marbles.

4. TOURS.—The Officiating Superintendent made the following excursions :—

To the Shevaroys in the Salem district where the taxidermists were occupied with the collection of birds and other specimens ; also to Sithampundi in the same district for the purpose of inspecting corundum deposits.

To Hunsur in Mysore territory to visit the corundum deposits.

To the cretaceous rocks of the neighbourhood of Pondicherry at the occasion of a geological excursion with students of the Presidency College.

To Trichinopoly twice for ascertaining more exactly the extent of phosphatic nodules and for making collections of cretaceous fossils.

(For remarks on the above inspections, see appendix E.)

The Second Assistant was deputed twice to the Trichinopoly district, once for the collection of 1 ton of phosphatic nodules for sending to the Right Honorable the Secretary of State for India for purposes of examination and analysis, and a second time for making some preliminary excavations on the site of the deposit of phosphatic nodules.

The collecting taxidermist was also deputed to Bellary for specimens. The herbarium-keeper completed the collection of cotton plants and produce of the Madras Presidency which had been commenced in the previous year for the London Imperial Institute and he travelled for the purpose in the cotton-producing districts of Bellary, Kurnool and Cuddapah and he also went to Mysore.

5. ART GALLERY.—One broken stone flute obtained from the treasures belonging to the Royal house of Tanjore was presented by Mr. Misquita of the "Victoria Natural History Institute" and was exhibited together with the ancient arms from Tanjore.

The collection of articles illustrating the ethnology of the Todas (a hill tribe of the Nílgiris) referred to in my last report was exhibited in the art gallery together with the model of a Toda hut received during the year. Specimens of Sivaganga brass-ware purchased during the year were exhibited in a small wall case. Two well sculptured bronze statues, procured through the Collector of North Arcot, were exhibited along with others in the Museum collection as well as one Perumal idol belonging to the ruined Chola temple at Poigai, Vellore taluk, presented by the Acting Magistrate of North Arcot and a statue and a bowl procured through the Collector of Trichinopoly under the Treasure Trove Act. A tray of inlaid Tanjoreware was added to the existing collections during the year.

A number of articles were obtained from the Madras Arsenal stores including a model of the Madras Lighthouse and of the Munro monument.

6. ETHNOLOGY AND ANTIQUITIES.—The antiquities have received an important addition through Mr. Rea's discoveries amongst the ruined Buddhist stûpa at Bhattiprolu, Répalle taluk, of the Kistna district. Mr. Rea unearthed three foundation stones which were buried at different depths in the central axis of the stûpa.

These foundation stones contain inscriptions and they were exhibited in the sculpture gallery and the contents of the stones were deposited in the coin room of the Museum.

The alphabet, we are informed, indicates the age of the relics to date back to about 240 B.C. The relics of the three caskets together include, besides numerous gold leaves, coins, plates of metal, &c., three round receptacles made of colorless and perfectly transparent rock crystal highly polished with lids and about 2 inches diameter.

Further a six-sided quartz prism 3 inches long with characters scratched on each side, numerous small pearls which have all more or less lost their lustre, two small bits of perforated coral, two small beads of quartz crystal and probably topaz, three amethysts and five beryls from $\frac{1}{4}$ to $\frac{3}{4}$ inches long. The beryls are of a light blue and particular care was taken to make certain that they had been correctly recognized. One of them, of 2·69 specific gravity, was examined under the polariscope by Dr. Max Bauer and two of them show the hexagonal prism of the original crystals.

There was another beryl of larger size, a six-sided prism $\frac{3}{4}$ inches high which was well polished and hollowed out so as to make a small phial holding three tiny bits of bone. It differed from the other beryls by its greenish colour, but it was well ascertained as beryl by its hardness, specific gravity = 2·67, its form and the uniaxial interference rings which it showed in polarized light. The phial has a lid of quartz and was coated with gold. Some further details may be gathered from Mr. Rea's letter, see G.O., No. 270, dated 22nd April 1892, Revenue Department.

Two pattern rails of Buddhist sculptures from Amarávati aggregating to 45 feet length with two rows of rosettes were erected by the Archæological Survey. A further selection of sculptures was made for erecting a larger portion of rail 43 feet long and 15 feet high with 3 rows of rosettes and cornices resting on them according to the pattern of the original stûpa.

The remaining sculptures were set up in inclined positions under the shelter of temporary arcades 130 feet in length. This facilitates the inspection and a walk through the sheds shows what a great variety there is in the sculptures and how many of them are in an excellent state of preservation. Seven pieces of ancient pottery and

2 pieces of gold female head ornaments dug out of tombs called Rakshasa Guthalus in the village of Tangaralapalli, Markapur taluk, Kurnool district, were received from the Collector of Kurnool. Some ancient pottery with bones, a sculptured slab and a rough-stone relic casket were received at the end of the year from the Superintendent, Archæological Survey, Madras, who discovered these articles at the Buddhist remains of Arugôlu in the Godávari district. Veterinary Captain R. W. Burke, F.R.C.V.S., kindly examined the bones and recognized a number of them as belonging to a large ruminant. There were 2 incisor teeth, portion of metacarpus, metatarsus, ischium and ilium. There were also some flat plates resembling the shields of a tortoise.

A *facsimile* of Asoka inscriptions measuring 15 feet by 11 feet was received from Dr. E. Hultzsch, Government Epigraphist, Bangalore, and hung up on the wall of the antiquity gallery. Two stone cart wheels were purchased through the aid of the Collector of Kurnool and exhibited in the antiquity gallery. These wheels are made of hard gneiss and largely used at this present day; but they will be of interest to visitors from districts in which such wheels are unknown. As they will in time be replaced by wooden and iron wheels, it is perhaps not out of place to exhibit them along with stone implements and other antiquities.

A cannon found in the Getty Mudali tank, Námakkal division, Salem district, and presented to the Museum by the Collector and an earthen jar found buried in a paramba called Kuttialipurath in Mainlayi amsam and desam in the Chirakkal taluk, Malabar district, and procured through the Acting Collector.

The following photographs presented by His Highness Rama Varmah, the 1st Prince of Travancore, were hung up in the library :—

Suchindrum tower, a teppakolam at South Travancore.

The Tripurapu falls, South Travancore. The Kuttalam falls, Tinnevelly district.

7. HERBARIUM.—Specimens of cotton plants from 7 districts and parts of Mysore collected by the herbarium-keeper were sent to Calcutta for the Imperial Institute where it is expected that they will be accurately named. Duplicates were reserved for the Herbarium. Fifty other botanical specimens from these districts and from Mysore were added to the Herbarium, and a number of plants were identified for private parties.

Dr. G. King, Superintendent, Royal Botanical Gardens, Calcutta, presented 133 dried plants from the Malay peninsula and the Andamans.

8. ECONOMIC PRODUCTS.—Simultaneously with the botanical specimens, samples of cotton in capsules, ginned cotton and cotton fabrics were obtained for the Imperial Institute and for the Museum.

Samples of Brush-making material were received from the Board of Revenue, Madras, as follows :—

Aloe	Screwpine.
Palmyra.	Poondicodi (Tamil name of a plant not yet determined).
Cocoanut	

Also from the Collector, South Arcot—

Cephalandra Indica.

Further were received—

Rubber made of Calotropis gigantea

Sandalwood oil.

Soap.

Further collected in the Bangalore gardens—

13 specimens of fruits and seeds.

For the Chicago Exhibition the Forest Department was supplied with 9 specimens of woods and products and 15 specimens of dye-yielding substances.

A commencement was made to re-arrange the whole of the economic collection in accordance with Dr. Watt's dictionary, the letter F having been reached at the end of the budget year.

9. MINERAL GALLERY.—The mineral gallery was entirely re-arranged so as to form one continuous collection of the mineral rocks and fossils of Southern India. Hitherto the mineral gallery had been split up into 50 collections by the separate exhibition of economic minerals, ores, marbles, &c., and of the minerals and of the

rocks of each individual district. Suitable as this arrangement was for showing at a glance what each district produced, the detailed collections were too small to be really instructive. It was therefore decided to abolish all divisions and to make the whole collection into one series, scientific specimens and economic samples of all descriptions being every one brought into its proper place according to the scientific classification of minerals and rocks.

The united collection begins with meteorites and after them the minerals are in the same order as they were formerly arranged in the index and district collections.

The rock collection is divided into eruptive, metamorphic, and sedimentary rocks arranged according to mineral constitution only. Next we have one case illustrating geological phenomena weathering glaciation, &c.

Lastly we have the fossiliferous formations of Southern India chiefly represented by fossils from the cretaceous strata of Trichinopoly which have been added during the year.

Appendix D shows the arrangement of the mineral gallery more in detail and serves at the same time as a catalogue.

The mineral gallery shows now easily the distribution of each species in the entire Presidency and students have before them of each kind of mineral all specimens from different localities.

Specimens of each kind are still arranged according to districts in the same order as followed in the mineral catalogue of 1890, so that by the aid of this catalogue all the specimens of one particular district may be found in their new places.

Numerous specimens of corundum were added to the collection during the year. The number of localities represented is now 30 from nine districts and two principalities (appendix E).

Corundum was presented to the Museum by H. G. Turner, Esq., H. R. P. Carter, Esq., and W. F. Petrie Hay, Esq., of Hunsur and others as shown in the list of donations, appendix B. Further additions were due to the Officiating Superintendent's visit to the corundum localities of Sithampundi in the Salem district and Hunsur in Mysore. Details about these visits will be noticed in appendix E.

Specimens of phosphatic nodules from the deposits in the Trichinopoly district were analysed and the results are reproduced in appendix E. The same appendix contains also details about the entire deposit examined during the year. The quantity of nodules estimated lying loose on the surface is 4,000 tons.

The spread of the deposit over such a large area of 10 square miles would *primâ facie* produce expectations of more important deposits under ground. For reasons shown in the appendix, such deposits were, however, hitherto not considered workable. As soon as practicable one or two sections will be thoroughly examined, so that no doubt can remain as to the nature and extent of the strata from which the surface deposits of phosphates have weathered out. It may here also be mentioned that celestine (Strontium sulphate) was found amongst the same deposits in large quantity. An analysis of the mineral was made by Herbert H. Dains, Esq., Vizianagrum.

A considerable number of cretaceous fossils were collected during two tours in the Trichinopoly district. They occupy ten new cases in the mineral gallery besides 968 specimens of 171 * species more or less which were sent to Europe. These Dr. W. Waagen has kindly undertaken to examine. They comprise a large number of ammonitidæ. Amongst others, 100 specimens of ammonites rotomagensis were included to facilitate eventually a determination of varieties.

	Species.
* Cœlenterata	5
Echinodermata	5
Annulosa	9
Lamellibranchiata	38
Gastropoda	47
Cephalopoda	67
Total ...	171

A reference to the donation list shows the minerals which were presented to the Museum during the year. Amongst them I would mention garnet crystals from Messrs. Arbuthnot and Co. Many of these show the icositetrahedron, the 24-faced form 2–1–1.

Also kyanite and crude asbestos.

Mr. Primrose presented coal from the Tenasserim in Lower Burmah.

A collection of 92 pot stone articles and sample blocks was made for the Imperial Institute.

The Collectors of nine districts have contributed (Nellore, Kurnool, Bellary, Anantapur, North Arcot, Salem, Coimbatore, South Canara, Malabar) and the Bangalore Museum supplied a collection from Mysore.

Specimens of corundum and of phosphatic nodules were also sent to Calcutta for the Imperial Institute.

10. NATURAL HISTORY.—Mr. A. T. Pringle has been so kind to take in hand the enlargement of the collection of butterflies from the neighbourhood of Madras city. He has contributed many specimens and has arranged to place in the collection as many as 5 specimens of each species.

Fish.—The following fish, all from the Madras coast, were preserved during the year.

In alcohol—Narcine timlei, Pempheris mangula, Caranx leptolepis, Arius sp., Exocœtus pœciloptérus.

Stuffed.—Carcharias melanopterus, Zygæna blochii, Stegostoma tigrinum, Clarias magur, Clupea toli, Serranus hexagonatus, Serranus bœnack, Lutjanus rivulatus, Lutjanus roseus, Diagramma cuvieri, Lethrinus karwa, Polynemus indicus, Caranx hippos, Chorinemus lysan, Thynnus thunnina, Cybium commersonii, Cybium guttatum, Mugil cunnesius.

The specimen of Rhinodon typicus referred to in the last report has been entirely remounted. A wooden frame was made which consisted of a girder over the whole length to which ribs shaped accurately according to measurements were fastened at every foot distance. Over the ribs dealwood bars were fastened lengthways and shaped according to the outline of the fish. The skin was soaked in concentrated alum solution in a reservoir built with cement but coated with tar. After the skin had remained in the solution for three weeks it was taken out, coated internally with arsenical paste, mounted on the model and sewn up. It was very pliable when it came out of the alum and after drying it became very hard and tight. A thin layer of tow was stuffed between the model and the skin. As it was impossible to fit the model to exact size, it had been made a little smaller and the deficiency was made up by stuffing. After the fish had thoroughly dried, the gill openings were closed with oilpaste and the whole fish varnished. The fish is now after a lapse of half a year in perfect order. Further notes and a ferro cyanide picture of the fish are added in appendix F.

A rare specimen of a snake, Dipsas Forsteni, from the Palmanér hills, Kátpádi, North Arcot, was presented by Mr. H. R. P. Carter, and two fine specimens of lizards, Calotes ophiomachus were presented by Dr. J. R. Henderson. An ibex skin with its skull presented by Mr. A. W. Turner will be mounted over a wooden frame. A fine specimen of bison's skull was purchased from W. Ditmas, Esq., who had lent it to the Museum for exhibition (see Administration Report, 1884–85). The bison was shot just within the Coorg frontier on the Brahmagiri hill. The horns are 43 inches across. Seventy-six birds and mammals were stuffed and added to the collection.

Appendix G gives a list of all the birds and all the mammals excluding skeletons from Southern India which were in the Museum at the close of the year under report. This list is added with the special object that naturalists and sportsmen, who may be inclined to assist the Museum by presenting specimens, may know what specimens the Museum is in want of.

11. NUMISMATICS.—As will be found in the list of donations (appendix B), the Museum is indebted for contributions of coins to the Asiatic Society of Bengal and to its Bombay branch, to Colonel Fane Sewell, to several district authorities and others. Twenty Gupta coins were purchased, chiefly Pathans, so that the total number of coins received were 188. Thirty coins obtained by the Museum with the late Mr. Scotts' collection during 1891–92 were examined by Dr. E. Hultzsch. They comprise coins of Vijayanagara, Chola, Madura, British India Company and 1 French coin of Karikal. An account was published by Dr. E. Hultzsch in the Indian Antiquary of November 1892.

12. LIBRARY.—The number of visitors to the library during the year was 6,622 against 6,298 in 1891–92.

The additions to the library were as follows :—

	Works.	Volumes.
* Donations of standard works	101	269
* Donations of periodicals	15	164
Reports and other papers presented by Government	99	169
Purchased standard works	52	87
Purchased periodicals	32	459
Publications of the British Museum	5	7
Papers of the patent office	4	102
Records of the Master of the Rolls	9	13
Parliamentary Blue books	41	45
Total ...	358	1,315

* For a list of all donations to the library, see Appendix C.

GOVERNMENT CENTRAL MUSEUM,
EGMORE,
Madras, 28th April 1893.

(Signed) H. WARTH,
Offg. Supt., Govt. Central Museum.

APPENDICES.

A.

VISITORS TO THE GOVERNMENT CENTRAL MUSEUM DURING THE YEAR 1892-93.

Total number of visitors in each month—

April	29,440	December	42,216
May	20,147	January	69,260
June	20,488	February	18,933
July	23,388	March	20,736
August	22,857		
September	23,147	Total ...	341,238
October	24,009		
November	26,617		

Of these there were men and boys 54 per cent., women and girls 46 per cent.
Of these 341,238 visitors the following numbers signed their names in—

English	30,090	Maharatta	46
Tamil	23,852	Bengali	93
Telugu	7,438	Chinese	6
Hindustani	3,252	Singalese	3
Canarese	679		
Malayalam	688	Total ...	66,671
Goojeratti	444		
Nagari	80		

The remaining (80 per eent.) could not write their names.

B.

LIST OF SPECIMENS PRESENTED TO THE GOVERNMENT CENTRAL MUSEUM DURING THE YEAR.

Abboy, T., Naidu—
50 specimens of plants ; 13 specimens of fruits and seeds.

Arbuthnot and Co., Messrs., Madras—
Garnets and mica shist containing garnets; crystals of kyanite and a kind of asbestos: all from Mysore State.

Arsenal, Madras, officer in charge of—
Bellows, wooden, Chinese.
Block, wooden, teak, 1 cubic foot.

Bolster for cutting dies with spring complete.
Hydraulic crane lifting heavy weights.
Hydrostatic press.
Instruments, brass, for taking distances.
Instruments for laying mortars proposed by Lieut. Gloay.
Machines for cleaning shot.
Madras Light-house.
Monuments (Munro), Man and horse made of brass.
Sundial model.
Water level, French.

Athisayam, T. G., Mr.—
8 shells; 1 scorpion; 2 eggs of Corvus splendens the common Indian crow; 2 eggs of Hirundo (the red-humped swallow); 1 egg of Cotyle sinensis (the Indian bank martin); 1 egg of Leptocoma zeylonica (the Amethyist-rumped honey-sucker); 1 egg of Passer flavicollis (the yellow-necked sparrow); 1 egg. (The above specimens were collected at Vizagapatam).

Bakerson and Co., Richard, Messrs., East Cheap, London—
1 sample of monazite sand.

Board of Revenue, Revenue Settlement, Land Records and Agriculture—
12 sets of manufactured articles and samples of fibres and brush-making materials from the districts of North Arcot, South Arcot, Madura, Chingleput and Tinnevelly; Felspar found with corundum at Kemmar village, South Canara; corundum from Kemmar village, Uppinangudi taluk, South Canara.

Bradley, H., Esq., Acting Collector of Kurnool—
2 gold female head ornaments (conic disc and a ribbon) 1 tolah. Found in a stone-lined tomb with earthern vessels and human remains in the village of Tungaralapalli, Markapur taluk, Kurnool district. Such tombs are known in locality as "Rakshasa Guthalus" and are locally supposed to have been used as places of refuge by the Rakshasas in their wars with Rama. Two guthalus were dug up—one a stone-lined grave 7′ by 5′ 6″ deep, covered with very heavy rough slabs. In this were only pottery and human bones. The second measured 6′ 3″ by 1′ 4″, depth 2′ 3″, covered with large stone slabs 6″ thick. The upper part of this tomb was found 7½ feet below the ground. White blocks of quartz marked the site of the tombs. Seven ancient pottery dug out of the tombs called "Rakshasa Guthalus" described above.

Burns, L. H., Esq., Kilpauk, Madras—
A large black scorpion found in Kilpauk.

Carter, H. R. P., Esq.—
1 snake (Dipsas forsterrie), Palmanér Hills. This snake was found eating a bat, and it is a rare species; 1 spider (Mygale faciatus); 1 crocodile. Specimens of corundum from Shegrispolliam and Karootapolliam of Palladam taluk of the Coimbatore District.

Dobie, S. L., Esq., Superintendent, Government Lunatic Asylum—
1 copper coin from Calicut of 1746.

Dunhill, H. A. R., Esq.—
1 egg.

Farquhar, William, Esq., Bombay—
4 crystals of crysoberyl.

Gaudoin, H., Mr., Student, Doveton College, Madras—
1 honey comb.

Hay, P. F., Esq., Hunsur, Mysore Province—
Many specimens of crystalized corundum from the Hunsur taluk in Mysore: specimens of corundum rock including a block 305 lb. weight.
A sample of sandalwood oil made at Hunsur, Mysore Province.

Henderson, J. R., Dr.—
2 Calotoes ophiomacnus.

His Highness the First Prince of Travancore—
2 photographs of Travancore secenery; 1 picture representing the Suchindrum tower and Teppacoolam (South Travancore).

Holder, E., Esq., Acting Superintendent, School of Arts—
1 sample of kaolin from Bellary district.

Holmes, W. T. H., Esq., Madras Club—
To illustrate the use of mica in electric apparatus 10 mica foils for electric lights. A piece of rubber made from 6 ounces of the white juice of colotropis gigantea; specimens of corundum from Pasur.

Honorary Secretary (Philological) Asiatic Society of Bengal—

Pathan coins—Sher Shah	5	Found in Saugor district.
Goozerati coins—Muzaffar Shah ...	5	

Moghul gold coins—10 of Jehangir, Shah Jehan and Aurangazib.
Moghul silver coins—8 of Jehangir, Shah Jehan and Aurangazib.
Moghul gold coins—2 of Muhammad Shah.

7 specimens of a find of ancient coin in Kangra district—

Bactrian apollodatus	2
Old Hindu Kuninda variety	5

Honorary Secretary, Bombay Branch Royal Asiatic Society, Bombay—
1 silver coin *guddhea* found in the Nassick district.
1 silver coin *gupta* found in the Kaira district.

Honorary Secretary, Indian Museum, Calcutta—
26 silver coins from Gwaliar durbar, viz., silver rupees of Khar Shah of the months of Shahi, Jehangir of the Ilahi year, Shah Jehan, and Aurangazib.

Hultzsch, E., Dr., Government Epigraphist, Bangalore—
Facsimile of inscription of Devanam Piye Piyadasi (Asoka) on a rock near Siddapur, Chitaldroog district, Mysore.

Jardine, W. E., Esq., Hospet, Bellary—
2 buck skins.

Jayaram and Brothers, Messrs., Auctioneers and Commission Agents—
Civet cat.

Joint Honorary Secretary, Bombay Branch Royal Asiatic Society, Bombay—
1 gold fanam found in the Dharwar district.

Kelly, F., Mr., Poodoopet—
1 duck's egg.

King, G., Dr., Superintendent, Royal Botanical Gardens, Calcutta—
133 dried specimens of plants from the Malayan Peninsula, Andamans, &c.

Kuruvilla, K. B. A., Mr., C. M. S. College, Kóttayam, Travancore—
Garnetiferous rock.

Love, H. D., Major, R.E.—
1 hornblende schist with garnet; 1 moth actias selene.

Marshall, H. H., Esq., Madras—
2 specimens of sea-snake (Chersydrus granulatus) from Ennore.

Meenakshi Soondramiah, M. S., M.R.Ry., Sivaganga, Madura district—
1 Meenatchy rose soap.
1 carbolic toilet soap.
1 Meenatchy transparent glycereine soap.
1 Terbine soap.
1 shaving bar soap, ½ pound.

Meppan, F. D., Esq., Bangalore—
Samples of asbestos from Mysore, Canada and Italy.

Misquita, T., Esq., Victoria Natural History Institute, Madras.
1 broken stone flute.

Morrison, E., Esq., Egmore—
15 plates of mica from Nellore of dark color.

Moore Theod Mr., Mineral Prospector, Badami district, Southern Mahratta Railway, Deccan—
Pyrite crystals transformed into limonite in Kaladgi.

Municipal Commission, Madras, the President—
1 tapir (6 days old); 1 lion; 1 leopard;
1 portax pictus (the Nilgai); 1 purple coot (porphyrio policephalus); 1 ourang-outang.

North Arcot, Collector and District Magistrate of—
9 pieces of corundum tapering hexagonal crystals with rock matrix adhering; 1 old Perumal idol from ruined Chola temple at Poigai, Vellore taluk.

Pinhey, Arthur, Esq., Collector of Vizagapatam—
Collection of shells of sorts; 2 tor-toise shells.
1 cast (Abhyasthum).

Primrose, A. H., Esq.—
1 ferruginous slab with leaf impressions and coal from Tennaserim.

Pringle, A. T., Esq., Madras Secretariat—
A collection of butterflies from Madras City.

Rea, A., Esq., Superintendent, Archæological Survey—
6 slabs of stones from Pedda Ganjam; relics from three foundation stones of a Buddhist stupa at Bhattiprolu, Kistna district; some ancient pottery with bones; a sculptured slab and a rough stone relic casket discovered at the Buddhist remains of Arugolu in the Godávari district.

Salem District, General Deputy Collector, Námakkal division—
1 cannon.

Sargeant, E. H., Esq.—
1 rhombus of mica.

Sewell, R., Esq., Collector of Bellary—
1 specimen of felspar.

Sewell, Fane, Colonel—
52 copper coins (chiefly Pathans).

South Arcot district, Collector of—
6 Porto Novo gold pagodas; 37 small gold coins.

Streeramulu Rajoo, M.R.Ry., Contractor, Madras—
3 corundum specimens from Coorg, Mysore and Salem.

Subraya Sastry, M.R.Ry., District Munsif, Gooty—
1 nest of ploceus baya (the common weaver bird).

Tailor, R. S. M., Mr., Poodoopet—
2 Hyderabad copper coins.

Thomson, J., Esq., Collector of Chingleput—
4 gold coins; coin figured by Sir Walter Elliot, Pl. I, Fig. XII.

Thurston, Edgar, Esq.—
Mus perrotetti, Coonoor.

Trichinopoly district, Collector of—
Idol of Krishna and Bowl.

Turner, A. W., Devikulam—
1 skin and skull of a buck (Nilgiri Ibex)—

Turner, H. G., Esq.—
Specimen of corundum.

Venkatasubbiah, M.R.Ry., Acting Deputy Tahsildar, Paramatti, Salem district—
Corundum specimens from Paramatti, Salem district.

Warth, H., Dr.—
Berlin Fisheries Exhibition medal.
7 striated pebbles, &c., from Glaciers and ancient Moraines in Switzerland collected in June 1890.

West, H. S., Esq.—
1 snake (Lycodon aulicus); 2 pieces of mica schist from Tettoo in Nellore district.

C.

DONATIONS TO THE LIBRARY.

Standard Works.

Agricultural Department—Bulletins Nos. 24 to 26, Names of the Field Crops grown, Palmyra, Palm and its uses, Sugar Mill, Madras, 1892, 3 copies.

American Museum of Natural History—Bulletin, 1891,

Annals of the Queensland Museum No. 2—Zoology of British New Guinea, 1892.

Appendix Series of the Indian Forester.—Iron Resources and Iron Industries of the Southern Districts, Madras Presidency; Resin and Turpentine from Indian Pines, 2 copies.

Archæological Drawings.—Plates and Texts, 1892, 34 copies.

Army (Annual) Act (55 Victoria, Chapter 2), 1892.

Bendire, C.—Life Histories of North American Birds, United States National Museum, Special Bulletin No. 1, 1892.

Benson, C.—An Account of the Normal Distribution of the Rainfall in the Madras Presidency 1892.

Black, C. E. D.—A Memoir on the Indian Surveys, 1875 to 1890, 1891.

Blanford, W. T.—Fauna of British India, Ceylon and Burma (Mammalia), 1888-91.

Bœttger, O.—Herpetologische Mitteilungen, 1892.

Bollettino Della Societa Di Naturalisti in Napoli—Vols. 5 and 6, 1891-92, 2 copies.

Brazier, J.—Marine Shells of Australia and Tasmania No. II (Pteropoda), 1892.

Burgess, J.—Report of the Archæological Survey of India, North-Western Provinces and Oudh, New Series, Vol. I, 1889.

Canadian Institute Transactions, 1891-92, 2 numbers; Annual Archæological Report and an Appendix to the Report of the Minister of Education, Canadian Institute, Session 1891.

Catalogue of Mysore Exhibits for Exhibition at Chicago, 1893.

Catalogue of Books in the Library of the Mysore Government Museum, Bangalore, 1892.

Catalogue of Books in the Library of the Presidency College, Madras, 1883.

Catalogue of the Diptera of the Oriental Region by M. J. M. F. Bigot, Part 2, 1891.

Catalogue of Rare and Valuable Gold, Silver and Copper Coins, the property of Mr. Eugene Legget, Karachi, Sind.

Catalogue of Sanskrit Manuscripts in the Library of the India Office, Part 3, 1891.
Census of India (1891)—Assam Report, Tables and Resolution, 1892, 3 vols.; Berar or the Hyderabad Assigned Districts, Vol. 6, 1892; Bombay, Vols. 7 and 8, 1892, 2 vols.; Burma Report, Vols. 9 and 10, 1892, 2 vols.; Punjab and its Feudatories, Vols. 20 and 21, Parts 2 and 3, 1892, 2 vols.; Rajputana, Vol. 26, Parts 1 and 2, 1892, 2 vols.
Challenger, H. M. S.—Report on the Scientific Results of the Deep Sea Deposits, 1891.
Chatterton, A.—Proposals for Utilizing Water-power in Southern India, 1892.
Cincinnati Museum Association—Catalogue of an Exhibition of Modern Etchings and Drawings, 1892; Catalogue of Oil Paintings and Sculpture, 1892.
Commercial Museum at Frankfurt, Germany, 1886.
Cotes, E. C.—Notes on a Conspectus of the Insects which affect Crops in India, in the Indian Museum, Vol 2, No. 6, 1893.
Cunningham, D. J.—Contribution to the Surface Anatomy of the Cerebral Hemispheres, 1892.
Distant, W. L.—Oriental Cicadidae in the Indian Museum, Calcutta, 1892.
Douglas, J.—Bombay and Western India, 1893, 2 vols.
Duthie, J. F.—Fodder Grasses of Northern India, 1888.
Duthie, J. F.—Illustrations of the Indigenous Fodder Grasses of the Plains of North-Western India, 1886-87, 2 parts.
Edinburgh University Calendar, 1869-70 and 1878-79, 2 vols.
Eigenmann, C. H and R. S.—Proceedings of the California Academy of Sciences, Vol. 3, Part I, 1891.
Eliot, J.—Indian Meteorological Memoirs, Vol 5, Parts 1 and 2, 1892, 2 parts.
Eliot, J.—Meteorological Observations, 7 copies, 1891; 10 copies, 1892, 17 copies.
Eliot, J.—Indian Weather Review Annual Summary, 1891.
Eliot, J.—Monthly Weather Review from July to December 1891, and from January to October 1892, 16 copies.
Fleming, S.—An Appeal to the Canadian Institute on the Rectification of Parliament, 1892.
Ganguli, G. D.—Catalogue of the Reference Library of the Provincial Museum, North-Western Provinces and Oudh, 1891.
Geographical and Statistical Memoir of the Survey of the Travancore and Cochin States, Vol. I, from July 1816 to the end of the year 1820, 1863.
Geological and Natural History Survey of Canada—Annual Report, New Series, Vol. 4, Part D, Maps Nos. 1 to 9; Part N, Nos. 1 to 3, 1888-89.
Geological Survey of Victoria Observations of New Vegetable Fossils of the Auriferous Drifts, 1874 and 1883, 2 parts; Report of Progress, Nos. 2 to 6, 1874-80, 5 copies.
Hand-books of Commercial Products, Indian Section, Imperial Institute, Series Nos. 1 to 10 and 12, 1892-93, 11 copies.
Handel's Geographie, 1890-91.
Haraprasad Shastri—Notices of Sanskrit Manuscripts, Vol. 10, Part 2, 1892.
Holland, T. H.—Preliminary Report on the Iron Ores and Iron Industries of the Salem District, 1892, 2 copies.
Imperial Institute—Year Book, 1892.
Indian Engineering—An Illustrated Wekly Journal, 1892.
India Office List, 1892.
Ireland, A.—Address on the Moral Influence of Free Libraries, Manchester, 1892.
Jacob, C. S. S.—Jeypore Portfolio of Architectural Details, Parts 1 to 6, 1890, 6 copies.
Jathisangrahasaram in Tamil, 1872.
Journal of the Society of Arts, Vol XI, No. 2054, 1892.
Kalyani Inscriptions erected by King Dhammaceti at Pegu, Text and Translation, 1892.
List of Notifications and Rules revised up to 31st December 1891, issued and published under the Provisions of Acts and Regulations in Madras, 1892.
Logan, W.—A Collection of Treaties, Engagements and other Papers of Importance relating to British Affairs in Malabar, Vol. 3, 2nd edition, 1891.
London University Calendar for the years 1870, 1876 and 1878, 3 vols.
Madras Christian College Magazine.—Vol. 10, Nos. 1, 3, 5, 7, 8 and 9, 1892-93, 6 parts.
Madras University Calendar, 1892-93, 2 vols.
Monograph on the Pottery and Glass Industries of the Punjab, 1890-91.
Muttrich, A.—Forsttich Meteorologischen Stationen, Nos. 1 to 6, 1892, 6 copies.
Muybridge, E.—Science of Animal Locomotion Zooprascography, 2 copies.
North-Western Provinces and Oudh.—Minutes of the Managing Committee, 1889-91, 1891-92, 2 vols.
Ogilby, J. D.—Catalogue of Australian Mammals, Australian Museum, Sydney, 1892.
Owen's College Calendar, 1874-75.
Pandian, Rev. T. B.—Slaves of the Soil in Southern India, 1892.
Peter, A.—Wandtafeln Zur Systematik Morphologie and Biologie der Pflanzen fur Universitaten und Schulen, 1 sheet large folio.
Poudaung Inscription erected by King Sinbyuyin, in 1874, A.D. 1891.
Pratapa Chandra Ray—Mahabharata, Parts 70 to 77, 1891-92, 8 copies.

Preservation of National Monuments.—Second and Third Reports of the Curator of Ancient Monuments in India, 1882-83, 1883-84, 2 copies.
Rainfall Data of India, 1891.
Ramsay, E. P.—Records of the Australian Museum, Vol. 2, Nos. 1 to 4, 1892-93, 4 copies.
Rare Photographic Memorials of the Mutiny, 1892.
Royal Gardens, Kew—Bulletin of Miscellaneous Information, 1 copy for 1891, 2 copies for 1892, 3 copies.
Royal Institute of British Architects—Journal of Proceedings, New Series, Vols. 1 to 3, and Vols 5 to 8, 1885, 1887, 1889 to 1892, 7 vols; Kalendar, 1892-93, 2 vols; Transactions, Vols. 4 to 8, 1888-92, 5 vols.
Royal Irish Academy Transactions—Vol. 30, Parts 3 and 4, 1892-93, 2 parts; Proceedings, Vol. 2, No. 2, 1892.
Rules of the Bangalore Library, 1892.
Rust, D.—Contributions to Canadian Micro-Palaeontology, 1892.
Sarat Chandra Mitra—Biographical Sketches of Indian Antiquarians, 2 numbers.
Schlagintweit, E.—Indien in Wort und Bild, 1890-91, 2 vols.
Scientific Results of the Second Yarkand Mission, 1878-91.
Sclater, W. L.—List of the Batrachia in the Indian Museum, 1892.
Shanar Vigarpa Vinavidai in Tamil, 1891.
Smith, C. M.—Madras Meteorological Results, 1861-90
Smith, C. M.—Madras Observatory Meridian Circle Observations, 1874-75 and 1876, 1892.
Smithsonian Report, Washington, 1890.
Spink and Sons.—Numismatology, Vol 1, No. 7, 1892.
Srinivasa Raghavaiyangar, S.—Memorandum on the Progress of the Madras Presidency during the last 40 years of British Administration, 1892.
Stein, M. A.—Kalhanas Rajatarangini in Sanskrit, Vol. I, 1892.
Strachey, J.—Hastings and the Rohilla War, 1892, 2 copies
Theobald, F. V.—An Account of British Flies (Diptera), Vol. I, Parts 5, 6, 7 and 8, 1892-93, 4 copies.
Transactions of the Seventh International Congress of Hygiene, Vol. II, Indian Hygiene and Demography, 1892.
United States National Museum—Bulletin No. 41, Published Writings of Dr. Charles Girard, 1891; Bulletin No. 42, Preliminary Descriptive Catalogue of the Systematic Collections in Economic Geology and Metallurgy, 1891; Reports, 1889.
Vannikula Vilakkam—English and Tamil, 1891, 2 vols.
Victoria, 1883—Mineral Statistics of Victoria, 1892.
Victoria, 1883—Report of the Chief Inspector of Mines to the Honorable the Minister of Mines, 1882; Reports of the Mining Surveyors and Registrars, Quarters ended 30th March and 30th June 1883, 2 copies.
Watt, G.—Dictionary of the Economic Products of India, Vol. 6, Part 1, 1892, Vols. 1 to 4, 2 parts in Vol. 5, interleaved, Ed. 1889-91, 7 vols.
Whitaker, W.—Memoirs of the Geological Survey of England and Wales, Geology of London, Vol. I, 1889.
Wingham.—A Report on the Analysis of Oriental Metal Work, &c., in the South Kensington Museum, 1892.
Wytsman, P.—Entomology, No. 9.

Periodicals.

Asiatic Society of Bengal—Journal, 8 parts, and Proceedings, 8 parts.
Bombay Natural History Society—Journal, 4 parts.
Epigraphia Indica, 3 parts.
Fort St. George Gazette, 48 issues.
Geological Survey of India—Memoirs, 1 part, and Index of the First Twenty Volumes and Records, 4 parts.
Hindu Reformer—A Monthly Journal, Vol. 8, Nos. 1 to 7, 1892-93, 7 copies.
Indian Antiquary, 13 issues.
Indian Art Journal, 4 parts.
London Royal Society Proceedings, 14 parts.
Madras Ports—Imports and Exports, 11 numbers.
Memoirs of the Geological Survey of India—Index of the genera and species described in the Palaeontologia Indica.
Musical Herald, 9 issues.
Oesterreichische Monatsschrift fur den Orient, 12 parts.
Pandit—Sanscrit Literature, 15 monthly issues.

D.

MINERAL GALLERY, GOVERNMENT CENTRAL MUSEUM.

EXTRA TERRESTRIAL OBJECTS.

METEORITES.

METEORIC STONES AND IRON FALLEN OR FOUND ON THE FOLLOWING DATES :—

Ensisheim, France, 1492.
Kraonojarsh, Siberia, 1775.
Tolucca, Mexico, 1784.
Krakhut, Benares, 1798.
Stannern, Moravia, 1808.
Elbogen, Bavaria, 1811.
Lenarto, Húngary, 1815.
Juvenar, France, 1821.
Bokkevelt, The Cape, 1838.
Namianthal, South Arcot, 1886.
Kakangari, Salem district, 1890.

MODELS OF METEORIC STONES FALLEN IN INDIA.

Daruba, Pattiala, 1815.
Bittoor, Allahabad, 1822.
Busta, North-West Provinces, 1852.
Segowlee, India, 1853.
Peprassee, India, 1861.
Nellore, Madras Presidency, 1852.
Nine more models without labels. Total, 26 specimens.

TERRESTRIAL SPECIMENS.

MINERALS.

108 kinds of minerals, of which 73 were exhibited from Southern India, the remaining being index specimens from elsewhere; bracketted in the list.

Native Elements.

	System of crystallisation.	Number of specimens.
Gold	Is.	15
(Silver)	Is.	1
Copper	Is.	2
(Osmiridium)	He.	1
(Platinum)	Is.	1
(Iron)	Is.	1
(Amalgam)	Is.	1
(Arsenic)	He.	2
(Bismuth)	He.	1
Sulphur	Or.	4
Diamond	Is.	2
Graphite	He. ?	11

Sulphides.

(Argentite)	Is.	1
(Zincblende)	Is.	1
(Cinnabar)	He.	1
Galena	Is.	17
Copper pyrites	Is.	5
Iron pyrites	Is.	11
(Orpiment)	Or.	2
(Stibnite)	Or.	1

	System of crystallisation.	Number of specimens.
Oxides.		
Corundum	He.	24
Spinel	Is.	3
Heamatite	He.	122
Braunite	Te.	2
Magnetite	Is.	269
Chromite	Is.	7
Gôthite	Or.	2
Limonite	..	107
Manufactured iron and steel	..	292
Manganite	Or.	12
Pyrolusite	Or.	6
Quartz	He.	75
Agate, etc.	..	162
Opal	..	26
Rutile	Te.	1
Tinstone	Te.	4
Zircon	Te.	2
Silicates.		
Artificial silicate—Glass	..	8
Augite (Coccolite)	Mo.	1
(Rhodonite)	Mo.	1
Hornblende	Mo.	9
(Tremolite)	Mo.	1
Actinolite	Mo.	4
Asbestos	Mo.	6
Beryl	He.	2
(Olivine)	Or..	3
Garnet	Is.	31
(Cinnamon stone)	Is.	2
(Pyrope)	Is.	1
(Idocrase)	Te.	2
(Lapis lazuli)	Is.	1
Mica	Mo.	40
Biotite	Mo.	1
(Lepidolite)	Mo.	1
Orthoclase	Mo.	4
Adularia	Mo.	5
Microcline	Tr.	2
Clevelandite	Tr.	1
Albite	Tr.	10
Oligoclase	Tr.	1
(Indianite)	Tr.	1
Labradorite	Tr.	6
Felspar, not named	..	10
Felspar, decomposing	..	2
Chlorite	Mo.	1
Talc	Mo.?	10
Steatite	..	23
Meerschaum	..	2
Serpentine	..	15
Verdantique	..	1
Kyanite	Mo.	6
Staurolite	Or.	3
Tourmaline	He.	11
(Topaz)	Or.	1
Epidote	Mo.	9
Hydrous silicates.		
Prehnite	Or.	4
Natrolite	Or.	4
Mesolite, fibrous	..	1
Thomsonite	Or.	3
Chabazite	He.	2
Stilbite	Or.	8
Pinite	..	1
Kaolin	..	24

	System of crystallisation.	Number of specimens.
Titanates, &c.		
(Sphene)	Mo.	1
(Wolframite)	Mo.	1
(Wulfenite)	Te.	1
Sulphates.		
Barite	Or.	11
Celestine	Or.	3
(Anhydrite)	Or.	2
Gypsum	Mo.	20
(Alunite)	Is.	1
Phosphates.		
Apatite	He.	4
Turquoise	..	1
Carbonates.		
Calcite	He.	64
Magnesite	He.	9
Siderite	He.	2
(Calamine)	He.	2
Dolomite	He.	3
(Aragonite)	Or.	5
(Witherite)	Or.	1
(Strontianite)	Or.	1
(Cerussite)	Or.	2
Malachite	Mo.	14
Azurite	Mo.	2
Nitrates, Chlorides, &c.		
Nitre	Or.	1
Rock salt	Is.	2
(Fluorspar)	Is.	3
Of Vegetable origin.		
Coal	..	4
(Bitumen)	..	3
Resinite	..	1
Peat	..	1

ROCK SPECIMENS.

GENERAL COLLECTION OF ROCKS.

Eruptive or Igneous Rocks.

Orthoclase group.

Granite	70
Pegmatite	14
Granulite	1
Epidote and Pistacite granite	8
Syenite	14
Porphyry	9
Felsite	3

Plagioclase group.

Basalt	7
Dolerite	18
Porphyritic dolerite	2
Trap, general term	16
Greenstones, general term	3
Diorite	13

Serpentine group.

Serpentine	5
Potstone and steatite	5
Collection of potstone articles	25

	Number of specimens.
Metamorphic Rocks.	
Gneiss (many of these rocks require microscopic examination).	186
Granitoid gneiss	5
Epidote rock	2
Staurolite rock	1
Mica shist	14
Hornblende shist	7
Talcose shist	15
Chlorite shist	12
Quartzose shist	5
Slate, ordinary	8
Clayslate	8
Marble and serpentinous limestone in large slabs	20
Limestones and marbles of various colours and patterns, more or less crystalline	60
Quartzite	36
Vein Rocks.	
Quartz from veins in Southern India	69
SEDIMENTARY ROCKS ARRANGED ACCORDING TO MINERAL CONSTITUTION INDEPENDENT OF AGE.	
Quartzose Rocks.	
Conglomerates	20
Breccias	7
Grits	4
Sandstones	68
Quartzites	27
Argillaceous Rocks.	
Kaolin	7
Clays of various colours	26
Shales and shaly clays	33
Laterites	24
Peaty shales and clays	7
Peat	2
Calcareous Rocks.	
Limestone	40
Cement, samples of cement	3
Dolomite	9
Marl	2
Shell limestone	8
Travertine	10
Kankar	7
Gypsum	1
Lithographic limestone and shell limestone in large slabs	14
SPECIMENS ILLUSTRATING GEOLOGICAL PHENOMENA.	
Slab of limestone showing the bedding	1
Slab of limestone with cast of sun cracks	1
Slab of sandstone showing ripple marking	1
Slab of sandstone showing concentric markings	1
Slabs of sandstone with dendritic markings	3
Septaria with veins, weathered into segments	2
Casts of salt crystals in sandstone	1
Slickenslide on quartz	1
Jointing, rhombic prisms of shist, sandstone and shale	3
Weathering. A piece of limestone	1
Gypsum with sharp edges	1
Pebbles with veins	5
Conglomerate of large pebbles	1
Ice scratched pebbles from modern glacier	4
Floor of modern glacier	1
Limestone from old moraine	1

THE GEOLOGICAL FORMATIONS OF SOUTHERN INDIA IN CHRONOLOGICAL ORDER.

Carboniferous.

	Number of specimens.
Kamptee beds near Nagpur. Specimens presented by Rev. Hislop. Fossil plants	48

Cretaceous.

The Cretaceous rocks of Southern India, Trichinopoly district.

Cœlenterata (Corals)	10
Echinodermata	25
Terebratula	2
Mollusca—	
Lamellibranchiata	216
Gasteropoda	91
Cephalopoda Nautilus	80
Ammonitidæ	250
Belemnites	10
Teeth of fish	2
Fossil fish	1
Teeth of Saurian	2
Plates and bones of Saurian	4
Collected before 1892 from Cretaceous of Trichinopoly area (mostly mollusca)	96
Nodules, concretions and minerals from the cretaceous rocks of Trichinopoly	120

Post Cainozoic.

Alluvial tin gravel of Lower Burmah	40
Sub-fossil reef of Pámban	60

The following tabular statement represents the collection from European fossiliferous strata arranged for students.

The table shows the number of rock specimens, plants and animal remains, the latter divided into thirteen sub-kingdoms and classes. The geological periods are enumerated from above downwards.

—	Rock specimens.	Plant remains.	Protozoa.	Porifera.	Cœlenterata.	Echinodermata.	Annulosa.		—	Mollusca.			Vertebrata.			Total.
			Nummulites.	Sponges.	Corals.	—	Annelida.	Crustacea.	Molluscoidea	Lamellibranchiata.	Gastropoda.	Cephalopoda.	Fishes.	Reptiles.	Mammals.	Specimens.
Miocene	..	..	..	..	3	..	..	..	..	35	62	..	..	2	6	108
Eocene	..	..	5	..	1	..	..	5	..	31	76	1	2	1	1	123
Chalk	..	..	..	6	3	49	3	2	15	37	..	12	5	2 (Coprolites).	..	134
Greensand	..	..	..	3	3	4	1	2	10	40	7	19	..	..	..	89
Wealden	..	2	..	..	..	..	..	4	..	5	2	..	1	..	..	14
Upper oolite ..	..	..	..	..	..	..	..	..	3	4	..	3	3	1	..	14
Middle oolite ..	..	4	..	..	10	10	..	..	7	23	1	19	..	..	..	74
Lower oolite ..	..	4	..	1	..	15	1	..	44	38	8	17	5	..	..	133
Lias	..	..	..	..	..	3	..	..	11	31	1	39	1	14	..	100
Trias	24	2	..	..	..	2	..	..	..	9	2	3	1	6	..	49
Permian	15	..	..	..	..	1	..	..	6	3	..	1	5	..	..	31
Carboniferous ..	92	74	..	..	11	12	..	1	58	5	9	5	8	..	..	275
Devonian	13	1		..	8	..	..	6	20	3	4	3	5	..	..	63
Total specimens ..	144	87	5	10	39	96	5	20	174	264	172	122	36	26	7	1,207

SUMMARY.

	Number of Specimens.
Extra terrestrial, meteorites	26
Terrestrial.	
Minerals, local, 73 species	1,600
Minerals, foreign, 35 species	50
Rocks, all from India.	
Eruptive (orthoclase, plagioclase and serpentine groups) ..	213
Metamorphic and vein rocks	448
Sedimentary rocks (quartzose, argillaceous and calcareous) ..	319
Geological phenomena illustrated	28
Indian geological formations, arranged chronologically, Kampti's	48
Trichinopoly cretaceous	909
Burmah alluvial	40
Pámban reef	60
Total ..	3,741
European fossils, arranged according to formations chronologically	1,207
Total ..	4,948

H. WARTH,
Offg. Supt., Govt. Central Museum.

1st March 1893.

E.

NOTES ON MINERALS.

Corundum.

The following is a list of localities from which samples of corundum are at present in the Government Central Museum, Madras :—

1. Vizagapatam district, Kodur.
2. Gódávari district, hills north-west of Rajahmundry.
3. Kistna district, Guntúr.
4. Kurnool district, Munagala, Ramallokot taluk.
5. Bellary district.
6. North Arcot district, Kuppam.
7. North Arcot district, Timmajammas estate near Chittoor.
8. Salem district, Kavandampatti.
9. Salem district, Pennagaram in the Dharmapuri taluk, presented by Sriramulu Raju, Contractor of Madras.
10. Salem district, Sithampundi.
11. Salem district, Solasiramani=Sholasigamany.
12. Salem district, Yelagiri hills.
13. Coimbatore district, crystals.
14. Coimbatore district, banks of the Cauvery.
15. Coimbatore district, Sholasigamany.
16. Coimbatore district, presented by H. G. Turner, Esq.
17. Coimbatore district, Gopichettipalayam.
18. Coimbatore district, Shegrispollaim and Karootapollaiam of Palladam taluk.
19. Coimbatore district, Pasur, presented by W. T. Hamilton Holmes, Esq.
20. South Canara district.
21. South Canara district, Kemmar village, Uppinangudi taluk.
22. Mysore Province, Hunsur, in block 300 lb.
23. Mysore Province, hills near Bangalore.
24. Mysore Province, Mallakotah (French Rocks near Seringapatam, presented by Sri Rmulu Raju, Contractor of Madras.

25. Mysore Province, Mysore.
26. Mysore Province, Saringamandahalli.
27. Mysore Province, Narnapeenhalli.
28. Mysore Province, Kalhully, Mandaya taluk.
29. Mysore Province, Singina Marina Halli near Hunsur.
30. Coorg Mysore Province, Kushalnagar.

More attention has of late been directed to the deposits of corundum in the Madras Presidency as a valuable article of export and on account of its possible use for the manufacture of aluminium at some future date. According to the above list the collection contains now specimens from 30 different localities, and there is a prospect of this number being considerably increased since the Board of Revenue have issued a circular inviting District officers to send specimens from all new localities that may come to their notice. The occurrence of corundum is limited to the area of metamorphic rocks, but a glance at the geological map of this Presidency issued with the last annual report shows that these rocks occupy far the largest portion of the country. At present the specimens in the Musuem come from 9 districts—Vizagapatam, Gódávari, Kistna, Kurnool in the north and the North Arcot, Salem, Coimbatore, South Canara further south. Corundum has also been reported from Ganjam, Anantapur, and the principality of Travancore, also from H. H. the Nizam's dominions and from Coorg. The southernmost part of the Presidency comprising 6 districts is entirely unrepresented.

I have been able to examine one of the localities where corundum occurs as usual in isolated crystals scattered through gneiss and other metamorphic rock. This was on a square mile of waste lands south of the village of Sithampundi in the Salem district. It is 2 miles E.S.E. from Sola siramani on the Cauvery river and also in the Salem district. The principal rock was a grey rock consisting of the quartz and hornblende with a little felspar which weathers easily; there are also beds of hornblende rock and garnetiferous shist, veins of quartz and lenticular masses of flesh-colored felspar a yard in thickness. Greenish corundum was obtained from shallow excavations scattered over the area of exposed shist; less frequent a red kind of corundum was found and followed up by deeper excavations.

No work was in progress during my visit, but a trial excavation in loose ground gave 1 part of corundum to 300 parts of matrix. The crystals were only half an inch in diameter. But it is known that larger crystals of about 1 inch diameter are also found, and very likely there are much richer places than the one I was able to test. Samples of the greenish corundum obtained by the Collector of Salem were good cleavage pieces of the foundamental rhombohedron of 86°. Dr. Max Bauer, Professor of Minerlogy, Marburg University, measured a number of them and found the angle always a few minutes above 86°. The fine net-work of lines on all the surfaces are due to twinning planes parallel to the three faces of the rhombohedron and they afford easy cleavage. Some rough tapering hexagonal prisms occurred also. Magnetite, calcite and hornblende were mixed with the corundum which the people had collected. The white powder with which many of the specimens were coated proved to be carbonate of lime. The pieces of red corundum were smaller but had also the characteristic striation or net work of twining lines. They differed in nothing from precious rubies except by their want of transparency. In fact a few small transparent pieces were also obtained from the neighbourhood by the district authorities. A small number of red or violet red crystals were examined, and as some of them showed inferior hardness and apparently octohedral form, they were all supposed to be spinel. A later examination of 10 small transparent crystals under the polarizing microscope showed that there were 3 spinels, 1 garnet, 6 rubies, the latter, however, not of sufficient size or quality to be sold as gems.

Another corundum locality which I was able to pass through is the taluk of Hunsur, in Mysore territory, about 30 miles west of Mysore city. Mr. F. W. Petrie Hay had corundum collected under a lease of the Mysore Government from a number of villages to the south and west of the town of Hunsur. Very excellent crystals of yellowish corundum with a brown weathered surface were collected from the fields. Some tapering hexagonal prisms up to 5 inches length and a cubical piece of about 4 inches side were amongst the specimens which Mr. Hay was kind enough to present to the Museum. But what struck me most at the very beginning were large blocks of quarried corundum which Mr. Hay had obtained. I considered them as of the greatest importance, because a much larger and more continuous yield would be expected from them than from the smaller scattered crystals.

The quality of the quarried pieces is very little inferior to that of the crystals. I found the specific gravity of the large crystals 4·02 and of the rock corundum 3 80. Mr. Hay presented to the Museum a block of this corundum weighing 300 lb. It appears that this rock corundum occurs in blocks 2 feet thick arranged in lines in the metamorphic rocks.

There is yet a possibility of beauxite being discovered and supplied at a lower rate for the manufacture of aluminium. It has lately been shown that beauxite occurs near Marburg in Germany as a product of alteration from basalt similar in origin to the kaolins and certain laterites which abound in India. The price of beauxite from near Marburg is quoted at eight Rupees a ton, whilst corundum costs in India eighty Rupees a ton. The aluminium works near Schaffhausen pay eighteen Rupees a ton for the beauxite delivered at their factory.

THE PHOSPHATIC NODULES OF THE TRICHINOPOLY DISTRICT.

Under instructions from the Government of Madras, one ton of nodules were sent to Her Majesty's Secretary of State, and the following chemical analysis obtained (omitting second places of decimals and some other details):—

	Voelcker.	J. F. King.
Phosphoric acid *	26·0	27·0
Lime	45·5	46·9
Alumina and iron oxide	5·8	4·0
Magnesia, sulphuric acid, &c.	1 0	3·2
Fluorine and alkalis	4·8	...
Silica	5·3	2·8
Carbonic acid †	7·2	10·3
Organic matter, moisture, &c.	4·4	5·8
	100·0	100·0
* Equal to tribasic phosphate	56·9	59·0
† Equal to carbonate of lime	16·4	23·4

We learn from Dr. Voelcker's report that the carolina phosphates at present shipped from America to England do not contain more phosphate of lime than the above, but they contain less alumina and iron oxide and less carbonate. Dr. Voelcker recommends the direct use of these phosphates without manufacturing them into superphosphate. To manufacture superphosphate profitably would require large quantities, more than 60,000 tons. During my last visit I have been able to ascertain that the entire area covered by phosphatic nodules equals 10 square miles, and that about 4,000 tons of nodules are lying more or less loosely on the surface. From the first I observed that the nodules on the surface had been accumulated by the washing away of the cretaceous shales in which they were embedded. The proportion of nodules in the shales, wherever I had an opportunity of examining the latter, appeared to me too small for profitable working. *Primâ facie* the existence of a superficial deposit of phosphates spread over such a large surface is certain to rouse expectation of more extensive underground deposits.

The excavation of soft shales enclosing the nodules is also very cheap comparatively, and although richer underground layers have not been observed nor any indications of such, yet it is impossible to say absolutely that there are none. It is therefore proposed to examine in detail one or two complete underground sections across the band of nodules. These sections are expected to settle the question of a possible larger supply definitely and they will be taken in hand as soon as possible.

IRON.

Iron ores.—As regards the possible utilization of the rich iron ores of this Presidency on a larger scale than the still existing local industry, I would refer to the publication of Mr. T. H. Holland's pamphlet (Preliminary report on the Iron ores and Iron industries of the Salem District).

Mr. Holland has shown in figures how the scarcity of fuel prevents the development of this highly desirable industry. As an example of the scarcity of fuel I might mention the fact that at this present moment the Kolar Gold Companies in the heart of Southern India use English coal for their engines, and yet it is with English iron and steel brought to this country for mere nothing that the Indian iron has to compete. The fuel difficulty remains an obstacle even should measures be taken to reduce the quantity of charcoal to a minimum. Wood-fuel or coal used as gas in reverberatory furnace would also cause an economy of fuel, but it would absorb all waste heat which in other cases would be available for steam-power. Water-power would have to be on the spot or be conveyed at great cost by electricity for working up the metal. As regards Mr. Chatterton's proposal of using electricity only without any fuel, this method would just as easily produce aluminium and with the electricity from waterfalls available it would pay better to make the former metal than even the most precious steel.

The only prospect under present circumstances of doing anything with the iron ore must be based upon their abundance, richness and quality. Their abundance and richness stands undoubted. As regards the quality it is of the greatest importance that elaborate chemical analysis should be made. We require to know first of all whether the amount of phosphorus is so small as not to require elimination for the best quality of iron and steel. Upon this condition hinges at present the possibility of working with exceptional economy of fuel. This point will be decided by the work which Mr. T. H. Holland has started. I am informed that analysis of all the specimens collected on his late tour through the iron districts are being made in England. It would be very satisfactory if the absence of phosphorus in some rich

deposits would be established. The direct process of steel-making in the Salem district indicates freedom from phosphorus, whilst the manufacture of Wootz steel in other districts points rather to the contrary, wrought iron being first produced and afterwards made into cast steel. For all this we must await the promised chemical analysis which will give the most ample and unerring information.

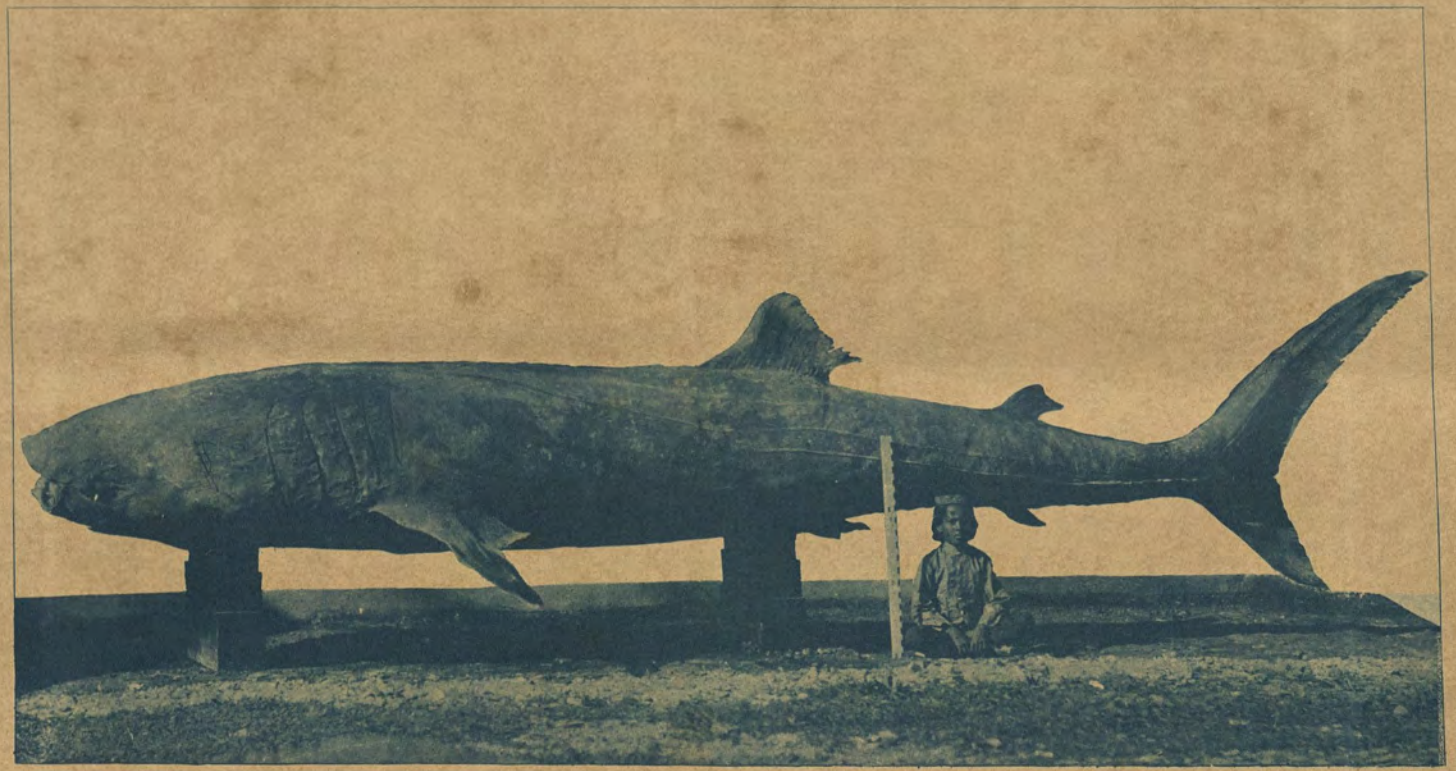
F.

The following is a ferro cyanide picture of the Shark rhinodon typicus set up in the fish gallery The bar shown resting against the fish is of three feet length. It was cast ashore, dead at Madras, in the year 1889, and temporarily stuffed and has now been more carefully preserved.

Specimens of this species are rare. Günther in his study of fishes says: "It is perfectly harmless, its teeth being extremely small and numerous, placed in broad bands. It has been stated to feed on tang—an observation which requires confirmation." The stomach of this specimen was examined, but found empty. Smith in his illustrations of the zoology of South Africa gives a picture of the fish and says the following about its food: "When our shark proceeds to feed, the first step it probably takes is to open its jaws to their full extent in order to permit the mouth and pharynx to become filled with sea water. On that being accomplished, the jaws are then probably closed in order that the water shall, by muscular effort in the pharynx, be propelled through the tubes in the branchiæ and forced thus to leave behind it whatever mollusca it may chance to contain.

The measurement of the dimensions makes the specimen 70 cubic feet, representing in sea water a weight of two tons. The weight of the stuffed specimen, with the skin and model together, is 6 cwt. The following measurements were kindly supplied by Dr. A. G. Bourne who took them when the fish was still lying at the beach:—

	INCHES.
Total length 22 feet	or 264
Root of 1st dorsal (fin) to upper jaw	118
Anterior edge of 1st dorsal	22
Base of 1st dorsal	24
Distance between 1st and 2nd dorsal	27
Anterior edge of 2nd dorsal	11⅛
Base of 2nd dorsal	10⅛
Length of upper caudal lobe	60
Length of lower „	30
Anterior edge of pectoral fin	38
First branchia to anterior edge of pectoral fin	15
Breadth of pectoral fin at base	20
Length of 1st gill opening	23
Length of 2nd „	23⅛
Length of 3rd „	21
Length of 4th „	20
Length of 5th „	17
Eye diameter	1⅛
Spiracle	⅝ inch by 1
Mouth	30
Teeth, lower jaw	14 rows.
Tip of snout to 1st branchia	40
Tip of snout to eye	10
Eye to spiracle	4



SURVEY OFFICE, MADRAS.
1893

RHINODON TYPICUS.

G.

LIST OF THE MAMMALS IN THE MAMMAL GALLERY.

All from Southern India.

Blanford's No.	Latin names.	English names.	No.
	Order Primates.		
5.	Macacus silenus	The lion-tailed monkey	1
10.	Macacus sinicus	The bonnet monkey	1
15.	Semnopithecus hypoleucus	The Malabar langur	1
16.	Semnopithecus johni	The Nilgiri langur	1
27.	Loris gracilis	The slender loris	2
	Order Carnivora.		
29.	Felis tigris	The tiger	1
30.	Felis pardus	The leopard or panther	3
35.	Felis viverrina	The fishing cat	1
36.	Felis bengalensis	The leopard cat	1
41.	Felis chaus	The jungle cat	1
42.	Felis caracal	The caracal	1
44.	Cynælurus jubatus	The hunting leopard	1
46.	Viverra civettina	The Malabar civet-cat	1
48.	Viverricula malaccensis	The small Indian civet	2
51.	Paradoxurus niger	The Indian palm-civet	2
54.	Paradoxurus jerdoni	The brown palm-civet	1
60.	Herpestes mungo	The common Indian mungoose	1
62.	Herpestes fuscus	The Nilgiri brown mungoose	1
64.	Herpestes vitticollis	The stripe-necked mungoose	1
66.	Hyæna striata	The striped hyæna	1
69.	Canis aureus	The jackal	1
70.	Cyon dukhunensis	The Indian wild dog	2
72.	Vulpes bengalensis	The Indian fox	1
77.	Mustela flavigula	The Indian marten	1
89.	Mellivora indica	The Indian ratel	1
92.	Lutra vulgaris	The common otter	2
95.	Lutra leptonyx	The clawless otter	1
100.	Melursus ursinus	The sloth-bear or Indian bear	1
	Order Insectivora.		
101.	Tupaia ellioti	The Madras tree-shrew	1
108.	Erinaceus micropus	The South Indian hedgehog	2
118.	Crocidura cærulea	The grey-musk shrew	2
120.	Crocidura bidiana	Bidie's shrew	1
125.	Crocidura perrotteti	The Indian pigmy shrew	1
	Order Chiroptera.		
134.	Pteropus medius	The Indian fruit-bat or flying-fox ...	2
138.	Cynopterus marginatus	The short-nosed fruit-bat	1
150.	Rhinolophus affinis	The allied horse-shoe bat	1
164.	Hipposiderus speoris	Schneider's leaf-nosed bat	1
194.	Nycticejus kuhli	The common yellow bat	1
213.	Cerivoula picta	The painted bat	2
220.	Taphozous longimanus	The long-armed sheath-tailed bat ...	1
222.	Taphozous saccolæmus	The pouch-bearing sheath-tailed bat ...	1
223.	Rhinopoma microphyllum	The long-tailed bat	1
225.	Nyctinomus plicatus	The Indian wrinkled-lipped bat	1

Blanford's No.	Latin names.	English names.	No.
	Order Rodentia.		
239.	Sciurus indicus	The large Indian squirrel	2
253.	Sciurus palmarum	The palm-squirrel or common striped squirrel	2
263.	Platacanthomys lasiurus	The Malabar spiny mouse	1
264.	Gerbillus indicus	The Indian gerbille or antelope rat	3
272.	Mus rattus	The common Indian rat	2
274.	Mus decumanus	The brown rat	2
282.	Mus musculus	The common house-mouse	2
287.	Mus buduga	The common Indian field-mouse	2
290.	Mus mettada	The metad rat or soft-furred field-rat	1
295.	Nesocia bengalensis	The Indian mole-rat	2
296.	Nesocia bandicota	The bandicoot-rat	3
315.	Hystrix leucura	The Indian porcupine	1
319.	Lepus nigricollis	The black-naped hare	1
351.	Hemitragus hylocrius	The Nilgiri wild goat	1
357.	Antilope cervicapra	The Indian antelope or black buck	2
362.	Cervulus muntjac	The rib-faced deer or barking deer	3
368.	Cervus axis	The spotted deer	1
371.	Tragulus meminna	The Indian chevrotain or mouse deer	3
374.	Sus cristatus	The Indian wild boar	1
	Order Cetacea.		
390.	Steno plumbeus	The plumbeous dolphin	1
391.	Steno perniger	Elliot's dolphin	1
	Order Edentata.		
399.	Manis pentadactyla	The Indian pangolin	2

LIST OF THE BIRDS IN THE BIRD GALLERY.

All from Southern India.

Order Raptores—Birds of Prey.

Jerdon's No.	Latin names.	English names.	No.
2.	Otogyps calvus	Black vulture	1
5.	Gyps bengalensis	Common brown vulture or white-backed vulture	1
6.	Neophron percnopterus	White scavenger vulture	2
8.	Falco peregrinus	The peregrine falcon	3
9.	Falco peregrinator	The shahin falcon	3
14.	Hypotriorchis severus	The Indian hobby	1
16.	Hypotriorchis chicquera	The red-headed merlin	1
17.	Tinnunculus alaudarius	The kestril	2
21.	Astur palumbarius	The goshawk	1
22.	Astur trivirgatus	The crested goshawk	1
23.	Micronisus badius	The shikra	3
29.	Aquila fulvescens	The tawny eagle	1
31.	Aquila pennata	The dwarf eagle	2
32.	Neopus malaiensis	The black eagle	1
35.	Limnætus cristalellus	The crested hawk eagle	1
38.	Circætus gallicus	The common serpent eagle	2
40.	Pandion haliætus	The osprey	2
43.	Haliætus leucogaster	The grey-backed sea eagle	2
48.	Poliornis teesa	The white-eyed buzzard	2
53.	Circus melanoleucos	The pied harrier	2
54.	Circus æruginosus	The marsh harrier	2

Jerdon's No.	Latin names.	English names.	No.
55.	Haliastur indus	The maroon-backed kite	2
56.	Milvus govinda	The common Pariah kite	2
57.	Pernis cristata	The crested honey buzzard	1
59.	Elanus melanopterus	The black-winged kite	1
60.	Strix javanica	The Indian screech owl	1
65.	Syrnium sinense	The mottled wood owl	2
69.	Urrua bengalensis	The rock horned owl	2
74.	Ephialtes pennatus	The Indian scops owl	2
76.	Athene brama	The spotted owlet	2
78.	Athene malabarica	The Malabar owlet	2
81.	Ninox scutellatus	The brown hawk owl	2
	Order Insessores—Perching Birds.		
86.	Hirundo fluvicola	The Indian cliff swallow	2
96.	Acanthylis gigantea	The Brown-necked spine tail	1
98.	Cypselus melba	Tha Alpine swift	1
100.	Cypselus affinis	The common Indian swift	2
104.	Dendrochelidon coronatus	The Indian crested swift	3
107.	Caprimulgus indicus	The jungle nightjar	1
117.	Merops viridis	The common Indian Bee-eater	2
118.	Merops philippensis	The blue-tailed Bee-eater	1
122.	Nyctiornis athertoni	The blue-necked Bee-eater	2
123.	Coracias indica	The Indian roller	2
127.	Halcyon leucocephalus	The brown-headed kingfisher	1
129.	Halcyon fuscus	The white-breasted kingfisher	2
130.	Halcyon atricapillus	The black-capped purple kingfisher	2
131.	Halcyon coromandelianus	The ruddy kingfisher	2
134.	Alcedo bengalensis	The common Indian kingfisher	1
136.	Ceryle rudis	The pied kingfisher	1
140.	Homraius bicornis	The great horn bill	2
141.	Hydrocissa coronata	The Malabar pied horn bill	1
144.	Meniceros bicornis	The common grey horn bill	1
147.	Palæornis alexandri	The Alexandrine parrakeet	3
149.	Palæornis rosa	The rose-headed parrakeet	2
151.	Palæornis columboides	The blue-winged parrakeet	1
153.	Loriculus vernalis	The Indian lorikeet	1
160.	Picus mahrattensis	The yellow-fronted woodpecker	2
164.	Yungipicus Hardwickii	The southern-pigmy woodpecker	1
165.	Hemicircus canente	The heart-spotted woodpecker	2
179.	Micropternus gularis	The Madras rufous woodpecker	1
180.	Brachypternus aurantius	The golden-backed woodpecker	1
188.	Yunx torquilla	The common wryneck	2
194.	Megalaima viridis	The small green barbet	2
197.	Xantholæma indica	The crimson-breasted barbet	1
199.	Cuculus canorus	The European cuckoo	2
203.	Cuculus micropterus	The Indian cuckoo	1
205.	Hierococcyx varius	The common hawk-cuckoo	2
208.	Polyphasia nigra	The Indian plaintive cuckoo	3
211.	Chrysococcyx hodgsoni	The emerald cuckoo	1
212.	Coccystes melanoleucos	The pied-crested cuckoo	2
213.	Coccystes coromandus	The red-winged crested cuckoo	2
214.	Eudynamys orientalis	The Indian koel	3
216.	Zanclostomus viridirostris	The small green-billed malkoha	1
217.	Centropus rufipennis	The common coucal	1
232.	Leptocoma zeylonica	The Amethyst-rumped Honey-sucker	1
234.	Arachnechthra Asiatica	The Purple Honey-sucker	2
250.	Sitta castaneoventris	The Chesnut-bellied Nuthatch	1
253.	Dendrophila frontalis	The Velvet-fronted Blue Nuthatch	2
255.	Upupa nigripennis	The Indian Hoopoe	2
257.	Lanius erythronotus	The Rufous-backed Shrike	2
260.	Lanius hardwickii	The Bay-backed Shrike	1
265.	Tephodornis pondiceriana	The Common Wood Shrike	1
267.	Hemipus picatus	The Little Pied Shrike	1
268.	Volvocivora sykesii	The Black headed Cuckoo Shrike	2

Blanford's No.	Latin names.	English names.	No.
270.	Graucalus macei	The Large Cuckoo Shrike	2
272.	Pericrocotus flammeus	The Orange Minivet	2
276.	Pericrocotus peregrinus	The Small Minivet	2
278.	Dicrurus macrocercus	The Common Drongo Shrike	1
281.	Dicrurus coerulescens	The White-bellied Drongo	1
282.	Chaptia aenea	The Bronzed Drongo	2
285.	Edolius Malabaricus	The Malabar Racket-tailed Drongo ...	2
286.	Chibia hottentota	The Hair-crested Drongo	1
287.	Artamus fuscus	The Ashy Swallow Shrike	2
288.	Tchitrea paradisi	The Paradise Flycatcher	3
297.	Alseonax latirostris	The Southern Brown Flycather	1
300.	Ochromela nigrorufa	The Black and Orange Flycatcher... ...	1
342.	Myiophonus Horsfieldii	The Malabar Whistling Thrush	2
345.	Pitta Bengalensis	The Yellow-breasted Ground Thrush ...	2
353.	Orocetes cinclorhynchus	The Blue-headed Chat Thrush	1
354.	Geocichla cyanotus	The White-winged Ground Thrush ...	2
355.	Geocichla citrina	The Orange-headed Ground Thrush ...	2
356.	Geocichla unicolor	The Dusky Ground Thrush	1
357.	Turdulus wardii	Ward's Pied Blackbird	1
359.	Merula nigropileus	The Black-capped Blackbird	1
372.	Oreocincla Nilgiriensis	The Neilgherry Thrush	1
385.	Pyctorhis sinensis	The Yellow-eyed Babbler	1
423.	Trochalopteron cachinnans	The Neilgherry Laughing Thrush... ...	2
433.	Malacocircus griseus	The White-headed Babbler	2
434.	Malacocircus Malabaricus	The Jungle Babbler	2
437.	Layardia subrufa	The Rufous Babbler	2
450.	Criniger ictericus	The Yellow-browed Bulbul	1
452.	Ixos luteolus	The White-browed Bush Bulbul	1
460.	Otocompsa Jocosa	The Red-whiskered Bulbul	2
462.	Pycnonotus haemorhous	The Common Madras Bulbul	2
464.	Phyllornis Malabaricus	The Malabar Green Bulbul...	2
467.	Iora zeylonica	The Black-headed Green Bulbul	1
469.	Irena puella	The Fairy Bluebird	3
470.	Oriolus kundoo	The Indian Oriole	2
471.	Oriolus Indicus	The Black-naped Indian Oriole	1
473.	Oriolus ceylonensis	The Southern Black-headed Oriole ..	5
475.	Copsychus saularis	The Magpie Roben	2
476.	Kittacincla macroura	The Shama	1
479.	Thamnobia fulicata	The Indian Black Robin	1
481.	Pratincola caprata	The White-winged Black Robin	1
497.	Ruticilla rufiventris	The Indian Redstart	1
507.	Larvivora cyana	The Blue Wood Chat	1
530.	Orthotomus longicauda	The Indian Tailor Bird	1
534.	Prinia socialis	The Dark Ashy Wren Warbler	1
589.	Motacilla Maderaspatana	The Pied Wagtail	1
591.	Motacilladukhunensis	The Black-faced Wagtail	1
592.	Calobates sulphurea	The Grey and Yellow Wagtail	1
631.	Zosterops palpebrosus	The White-eyed Tit	2
645.	Parus cinereus	The Indian Grey-tit	1
660.	Corvus culminatus	The Indian Corby	1
663.	Corvus splendens	The Common Indian Crow...	1
674.	Dendrocitta rufa	The Common Indian Magpie	3
678.	Dendrocitta leucogastra	The Long-tailed Magpie	1
681.	Sturnus vulgaris	The Common Starling	1
684.	Acridotheres tristis	The Common Myna	3
686.	Acridotheres fuscus	The Jungle Myna	1
687.	Temenuchus pagodarum	The Black-headed Myna	2
688.	Temenuchus Malabaricus	The Grey-headed Myna	2
690.	Pastor roseus	The Rose-colored Starling	1
694.	Ploceus baya	The Common Weaver-bird	2
695.	Ploceus manyar	The Straited Weaver-bird	1
697.	Munia Malacca	The Black-headed Munia	2
699.	Munia undulata	The Spotted Munia	2
703.	Munia malabarica	The Plain Brown Munia	2
704.	Estrelda amandava	The Red Wax-bill	2
706.	Passer indicus	The Indian House Sparrow	2

Blanford's No.	Latin Names.	English Names.	No.
711.	Passer flavicollis	The Yellow-necked Sparrow	1
755.	Mirafra affinis	The Madras Bush Lark	1
765.	Spizalauda deva	The Small-crested Lark	1
767.	Alanda gulgula	The Indian Sky-lark	1
	Order gemitores Pigeons.		
773.	Crocopus chlorigaster	The Southern Green Pigeon	1
774.	Osmotreron bicincta	The Orange-breasted Green Pigeon	1
781.	Carpophaga insignis	The Bronze-backed Imperial Pigeon	1
786.	Palumbus elphinstonei	The Neilgherry Wood-pigeon	1
788.	Columba intermedia	The Blue Rock-pigeon	1
793.	Turtur meena	The Rufous Turtle-dove	2
795.	Turtur suratensis	The Spotted Dove	2
796.	Turtur risoria	The Common Ring-dove	2
798.	Chalcophaps indicus	The Bronze-winged Dove	1
	Order Rasores.		
800.	Pterocles fasciatus	The Painted Sand-grouse	3
802.	Pterocles exustus	The Common Sand-grouse	2
803.	Pavo cristatus	The Common Peacock	2
813.	Gallus sonneratii	The Grey Jungle-fowl	2
814.	Galloperdix spadiceus	The Red Spur-fowl	2
815.	Galloperdix lunulosus	The Painted Spur-fowl	2
822.	Ortygornis ponticeriana	The Grey Partridge	2
826.	Perdicula cambayensis	The Jungle Bush-quail	1
827.	Perdicula Asiatica	The Rock Bush-quail	3
828.	Perdicula erythrorhyncha	The Painted Bush-quail	2
829.	Coturnix communis	The Large Grey Quail	2
831.	Excalfactoria chinensis	The Blue-breasted Quail	2
832.	Turnix taigoor	The Black-breasted Bustard Quail	3
	Order Grallatores.		
836.	Eupodotis Edwardsii	The Indian Bustard	1
839.	Sypheotides auritus	The Lesser Florikin	2
842.	Glareola orientalis	The Large Swallow-plover	2
843.	Glareola lactea	The Small Swallow-plover	2
844.	Squatarola Helvetica	The Grey Plover	4
845.	Charadrius longipes	The Golden Plover	2
848.	Aegialitis cantianus	The Kentish Ring-plover	2
856.	Sarciophorus bilobus	The Yellow-wattled Lapwing	1
858.	Esacus recurvirostris	The Large Stone-plover	1
859.	Oedicnemus crepitans	The Stone Plover	2
862.	Haematopus ostralegus	The Oyster-catcher	2
863.	Grub antigone	The Sarus Crane	1
866.	Anthropoides virgo	The Demoiselle Crane	1
867.	Scolopax rusticola	The Wood-cock	1
868.	Gallinago nemoricola	The Wood-snipe	1
870.	Gallinago stenura	The Pin-tailed Snipe	4
871.	Gallinago scolopacinus	The Common Snipe	4
872.	Gallinago gallinula	The Jack Snipe	2
873.	Rhynchaea Bengalensis	The Painted Snipe	2
875.	Limosa aegocephala	The Small Godwit	1
876.	Terekia cinerea	The Avoset Sandpiper	2
877.	Numenius arquata	The Curlew	2
878.	Numenius phæopus	The Whimbrel	2
880.	Philomachus pugnax	The Ruff	6
884.	Tringa minuta	The Little Stint	2
891.	Actitis glareola	The Spotted Sandpiper	2
894.	Totanus glottis	The Green Shanks	2
895.	Totanus stagnatilis	The Little Green-shanks	2
896.	Totanus fuscus	The Spotted Red-shanks	2
897.	Totanus calidris	The Red-shanks	2
898.	Himantopus candidus	The Stilt or Long-legs	2
899.	Recurvirostra avocetta	The Avoset	1

Blanford's No.	Latin names.	English names.	No.
901.	Hydrophasianus chirurgus	The Pheasant-tailed Jacana	1
902.	Porphyrio poliocephalus	The Purple Coat	2
904.	Gallicrex cristatus	The Water Cock	2
905.	Gallinula chloropus	The Water Hen	2
907.	Gallinula phœnicura	The White-breasted Water-hen	2
911.	Porzana fusca	THE Ruddy Rail	1
917.	Mycteria Australis	The Black-necked Stork	1
919.	Ciconia alba	The White Stork	1
923.	Ardea cinerea	The Blue Heron	1
924.	Ardea purpurea	The Purple Heron	1
925.	Herodias alba	The Large Egret	1
927.	Herodias garzetta	The Little Egret	2
930.	Ardeola leucoptera	The Pond Heron	2
931.	Butorides javanica	The Little Green Heron	1
932.	Ardetta flavicollis	The Black Bittern	2
934.	Ardetta sinensis	The Yellow Bittern	1
936.	Botaurus stellaris	The Bittern	2
937.	Nycticorax griseus	The Night Heron	1
938.	Tantalus leucocephalus	The Pelican Ibis	1
940.	Anastomus oscitans	The Shell Ibis	1
941.	Threskiornis melanocephalus	The White Ibis	1
942.	Geronticus papillosus	The Warty-headed or Black Ibis	1

Order Natatores.

944.	Phoenicopterus roseus	The Flamingo	1
949.	Anser indicus	The Barred-headed Goose	2
951.	Nettapus Coromandelianus	The White-bodied Goose-teal	2
952.	Dendrocygna awsuree	The Whistling Teal	2
953.	Dendrocygna major	The Large Whistling Teal	1
957.	Spatula clypeata	The Shoveller	2
959.	Anas poecilorhyncha	The Spotted-billed Duck	2
960.	Anas caryophyllacea	The Pink-headed Duck	1
961.	Chaulelasmus streperus	The Gadwall	1
962.	Dafila acuta	The Pin-tail Duck	2
963.	Mareca penelope	The Wigeon	2
964.	Querquedula crecca	The Common Teal	2
965.	Querquedula circia	The Blue-winged Teal	2
967.	Branta rufina	The Red-crested Pochard	2
971.	Fuligula cristata	The Tufted Duck	2
975.	Podiceps philippensis	The Little Grebe	3
979.	Kroikocephalus ichthyaetus	The Great Black-headed Gull	1
980.	Xema brunnicephala	The Brown-headed Gull	1
989.	Thalasseus cristatus	The Large Sea-tern	2
990.	Thalasseus Bengalensis	The Smaller Sea-tern	2
995.	Rhynchops albicollis	The Indian Skimmer	1
1004.	Pelecanus philippensis	The Grey Pelican	2
1005.	Graculus carbo	The Large Cormorant	2
1007.	Graculus javanicus	The Little Cormorant	2
1008.	Plotus melanogaster	The Indian Snake Bird	1

CLASSIFIED LIST OF EXPENDITURE OF THE GOVERNMENT CENTRAL MUSEUM DURING THE YEAR 1892-93.

	Actuals, 1892-93.	Revised estimate, 1892-93.
	RS.	RS.
Salaries.		
Superintendent	10,150	9,600
Permanent Establishment.		
First Assistant, Second Assistant, First, Second and Third Taxidermists, Herbarium Keeper, Artist, Writer, Librarian, Assistant Librarian, Head Humal, Superintendent's peon—12 persons	4,884	4,884
Temporary Establishment.		
Assistant writer, 12 humals, chickledar, 3 gardeners, collecting taxidermist, 2 sweepers, 4 watchmen, water-pandal Brahmin, office peon, 2 punkah pullers—28 persons	2,565	...
Total, establishment ...	7,449	4,884
Allowance.		
Travelling allowance	1,178	1,000
Supplies and Services.		
Cost of specimens purchased on tour	1,378	1,000
Cost of specimens, objects of interest and coins at head-quarters	99	200
Preparation of fittings, furniture, &c., for the collection	2,999	3,000
Total, Supplies and Services ...	4,476	4,200
Cost of books and publications	2,172	1,800
Contingencies.		
Purchase and repair of furniture	195	200
Binding books and lithographing plates	380	800
Rents, rates and taxes	1,098	1,098
Postal charges, telegram charges, office expenses and miscellaneous	1,571	4,024
Kerosine-oil grant	15	19
Total, Contingencies ...	3,259	6,141
Grand Total ...	28,684	27,625

READ—the following letter from Dr. H. WARTH, Officiating Superintendent, Government Central Museum, Madras, to the Secretary to Government, Revenue Department, dated 11th May 1893, No. 566 :—

In obedience to paragraph 3 of G.O., Revenue Department, No. 224, dated 7th March 1893, I have the honour to send herewith two printed copies of my report on the working of the Government Central Museum for 1892–93.

2. I have also the honour to inquire whether I am to forward the 35 copies *plus* 2 advance copies of the report without the Government review thereon to the Assistant Secretary to Government, Revenue Department, as per G.O., Revenue Department, No. 290, Mis., dated 25th January 1893, for transmission to the India Office, &c., as desired in paragraph 2 of G.O., Financial Department, No. 316, dated 24th March 1893, communicated to me in G.O., Revenue Department, No. 1409, dated 19th April 1893.

ORDER—dated 6th June 1893, No. 478, Revenue.

Miscellaneous.

With his letter read above, Dr. Warth submits his report on the administration of the Government Central Museum during 1892–93. The report contains much matter of scientific interest and shows satisfactory progress in all departments of the Museum.

2. As compared with the previous year the total number of visitors to the Museum showed a decrease of 20,214 which is not satisfactorily accounted for. The number of persons who visit a public institution like a Museum depends, however, on a variety of causes and naturally fluctuates from year to year. The number of gosha ladies who visited the Museum rose from 1,409 in 1891–92 to 1,957 in 1892–93. The number of visitors to the library was also slightly in excess of the previous year's figure. The library received numerous additions in the shape of books and publications, and a library catalogue, which has recently been compiled and is now being printed, will supply a long-felt want.

3. Dr. Warth made some interesting geological excursions during the year, the results of which are embodied in his "Notes on Minerals" which form one of the appendices to his administration report. It was mentioned in the previous year's review that a sample of the phosphatic nodules discovered by Dr. Warth in the Trichinopoly district had been sent to England for analysis by an agricultural chemist. The analysis, the result of which has recently been communicated to this Government by the Secretary of State for India, has proved fairly satisfactory, but it is not yet known whether the deposits of phosphate of lime are sufficiently deep to make it profitable to convert the nodules into superphosphate for purposes of exportation or for use locally, and Dr. Warth has been instructed to make further inquiries on the subject in consultation with the Director of Agriculture and to submit a full report to Government.

4. The actual expenditure of the Museum department during the year under review amounted to Rs. 28,684, or Rs. 1,084 in excess of the revised estimate. The reasons for the variations from the revised estimate, which occur chiefly under the heads "Superintendent's salary," "Cost of specimens purchased on tour," and "Cost of books and publication" should have been briefly explained in the classified list of expenditure appended to the report.

5. In conclusion, His Excellency the Governor in Council desires to express his thanks to the members of the public who made contributions to the various departments of the Museum.

6. Separate orders have been issued on the question raised in paragraph 2 of the Superintendent's letter read at the head of this Proceedings.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

To the Superintendent, Government Central Museum.
„ the Public Department.
„ the Commissioners of Land Revenue.
„ the Commissioner of Revenue Settlement, Land Records and Agriculture.
„ the Accountant-General.
„ the Surgeon-General with the Government of Madras
(through the Public Department).

No. 478A.

Copy to the Government of India, Revenue and Agricultural Department.

(Signed) C. A. GALTON,
Secretary to Government.

Exd. C. M. Brisson.

200 Copies.

Govt. of {1893} Madras.

REVENUE.

Issued

Recd. *Encl.*

G.O., 6th June 1893,
Nos. 478, 478A.

JUNE.

Government Central Museum.

Reviewing the administration report of the - for 1892-93.

ADMINISTRATION REPORT

OF THE

MADRAS GOVERNMENT MUSEUM

FOR THE YEAR

1893-94.

MADRAS:
PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS.

1894.

BOMBAY BRANCH
OF THE
Royal Asiatic Society.
CLASS

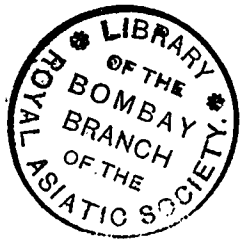
ADMINISTRATION REPORT

OF THE

MADRAS GOVERNMENT MUSEUM

FOR THE YEAR

1893-94.



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MADRAS:
PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS.

1894.

ADMINISTRATION REPORT

OF THE

MADRAS GOVERNMENT MUSEUM

FOR THE YEAR 1893-94.

I resumed charge of the Museum from Dr. Warth, after an absence of more than two years on duty with the Government of India, on December 4th, 1893, and am therefore only able to speak from personal experience of the work carried out during the last four months of the official year.

2. VISITORS TO THE MUSEUM.—The total number of visitors to the Museum was 311,112 against 341,238 in the preceding year. The decrease of 30,126 cannot be accounted for; but, as pointed out by Government in reviewing the last annual report, "the number of persons who visit a public institution like a Museum depends on a variety of causes, and naturally fluctuates from year to year."

The number of gosha ladies who visited the Museum on the days set apart for them was 1,524 against 1,957 in the preceding year.

The following statement shows the rise and fall in the number of visitors to the Museum since 1886-87 :—

1886-87	233,028
1887-88	264,182
1888-89	337,801
1889-90	378,234
1890-91	364,542
1891-92	361,452
1892-93	341,238
1893-94	311,112

3. ESTABLISHMENT.—I was called on by Government in G.O., Mis. No. 4453, dated 29th November, 1893, to formulate proposals for determining once for all the permanent staff necessary for the upkeep of the Museum. The proposals submitted were approved, and the following temporary appointments declared permanent:—

1 Assistant writer.
12 Humáls (gallery attendants).
1 Chickeldar (cleaner of arms and metalware).
1 Peon (and compositor).

A detailed statement of the Museum establishment, as revised, is given in Appendix E.

4. PUBLICATIONS.—The edition of my 'Pearl and chank fisheries, and marine fauna of the Gulf of Manaar,' 1890, being exhausted, and fresh material awaiting incorporation, advantage has been taken of the opportunity to commence a series of bulletins dealing with the results of my wanderings on behalf of the Museum, and other matters which may seem worthy of being placed on record. The first issue of these bulletins will comprise a revised edition of the 'Pearl and chank fisheries;' and the 'Marine fauna of the Gulf of Manaar' will be published subsequently. Both these were going through the Press at the end of the year. The illustrative plates have been prepared at the Calcutta School of Arts and by the Calcutta Photo-type Company from photographs and micro-photographs taken by myself.

A revised edition of my 'Catalogue of Roman, Indo-Portuguese and Ceylon Coins' was also in the Press at the end of the year, and includes many valuable additions of aurei, denarii, &c., to the Museum collection since the publication of the first edition in 1888.

The revision of the proof sheets of the catalogue of the Museum library, carried out for the most part under the great disadvantage of absence from Madras, was nearly completed at the end of the year, and the catalogue will be issued very soon.

5. Tours.—In March I was absent from Madras, accompanied by two of the taxidermists, on tour on the west coast from Cochin northwards with halts at Calicut, Tellicherry, and Cannanore, to Mangalore. The objects of the tour were (*a*) to acquire a collection for illustration of the littoral fauna (apart from fishes) of that portion of the Indian Ocean which limits the Madras Presidency on the west, and for comparison of the fauna with that of the Bay of Bengal which is already well represented in the Museum; (*b*) to enquire into the fishing industry of the west coast. The result, so far as collections are concerned, took the form of a rich harvest of mollusca, crustacea, &c., and will be dealt with hereafter in one of the Museum bulletins.

The officiating Superintendent made a long stay on the Palni Hills with a view to obtaining geological and natural history specimens, and also visited the Trichinopoly district for the sake of making an examination of the phosphatic deposits (see paragraph 14).

6. Printing Press.—By G.O., No. 4371, dated 7th August, 1891, the appointment of printer was abolished, and it was ordered that all printing for the Museum should be done at the Government Press, to which the small Museum printing press was transferred. On my return to Madras, I proposed that the printing press should again be placed at my disposal at the Museum, on the ground that it would be of very great advantage in carrying out the day-to-day printing, such as can be done without delay on the spot. The proposal met with the approval of Government, and the press was returned to the Museum in February.

7. Index Collections.—A series has been completed and exhibited, illustrating, by means of specimens with descriptive labels, the principal types of Indian fishes, their external anatomy, dentition, adaptation to different modes of life, weapons of defence, &c. A further series has been completed, illustrating, by means of selected South Indian types, the general structure of Arthropods (crustacea, arachnida, myriapoda and insecta), their life history, adaptation to different modes of life, mimicry, &c.

The index collections, which have been prepared up to the present time, comprise the following:—

Integumentary structures of mammals.
Dentition of mammals.
Birds.
Fishes.
Crocodilians and chelonians.
Molluscan shell.
Arthropods.
Minerals.

In the annual report for the year 1889–90, I expressed a hope that the index collections, which were commenced in that year, would be of use both to those engaged in teaching and to students. Further experience has proved not only that this hope was justified, but that the series proves attractive to visitors who come to the Museum as sight-seers, with no definite intention of being instructed.

8. Herbarium.—A collection of 355 plants, ferns and grasses from Assam, Pegu, the Andaman Islands, &c., was presented by Dr. George King, Superintendent, Botanical Gardens, Calcutta. To Mr. J. S. Gamble the Museum was indebted for a collection of 58 specimens of bamboos. The Museum collection of bamboos was sent to Mr. Gamble for reference and returned.

9. Economic Products.—A start was made with the systematic arrangement of the economic products of Southern India in alphabetical sequence, to correspond with the official 'Dictionary of the Economic Products of India.' The existing arrangement must, however, be regarded as provisional, as it is my intention, on the transfer of the books in the Museum library to the Connemara Public Library, to convert the present library into an economic gallery, for which purpose it is well adapted.

The available material consists of (*a*) an excellent collection of forest products (including timbers) which was transferred to the Museum on the departure of Mr. J. S. Gamble to Dehra Dún; (*b*) duplicate specimens set apart from the collections made in Calcutta for the Imperial Institute, South Kensington; (*c*) collections accumulated from time to time at the Museum itself.

The Technical Sub-Director of the Imperial Institute having reported that the fibre of *Agave Americana*, acquired by me in the Coimbatore bazár, "had been very well reported on, and is considered to be nearly as good as Manilla hemp," the Museum Herbarium-keeper was deputed to visit Coimbatore and investigate the conditions of growth of the plant, method of preparation, &c. The results of his enquiries have been published in bulletin No. 30 of the Department of Land Records and Agriculture, Madras, and further samples of the fibre and scrapers used in its preparation sent to the Imperial Institute.

Samples in bulk of chay-root (*Oldenlandia umbellata*) and the root-bark of *Ventilago Madraspatana*, a much valued dye-stuff in Southern India, were, at the request of the Reporter on Economic Products, obtained in the local bazár for Professor Hummel, of the Leeds school of dyeing, for purposes of investigation into their dyeing properties.

10. Archæology.—The following articles from the Buddhist remains at Arugôlu, in the Gódávari district, were received from Mr. A. Rea of the Archæological Survey:—

(*a*) A small crystal relic casket found inside the cavity of a rough laterite boulder casket.
(*b*) A pierced glass (?) cylinder with groove on rim from the centre of a stupa in the vihara.
(*c*) A small disc of earthenware.
(*d*) A brass finger-ring.

Four sculptured slabs from the Buddhist stupa of Amarávati were received through the Collector of the Kistna district. These, together with a large number of Amarávati marbles in a good state of preservation, which have been provisionally arranged in the Museum grounds, remain to be set up in the archæology gallery, wherein a large number of these marbles are already exhibited.

To the Rev. J. E. Tracy the Museum was indebted for a donation of earthenware cups from cromlechs near Kovilpatti in the Periyakulam taluk of the Madura district.

11. Art Gallery.—Some good examples of sandal-wood carving by the Gudigars of Mysore (who are now, I am informed, working for European firms from patterns sent from Europe) were exhibited in a table-case.

Specimens of carving in "rose-wood" (*Dalbergia latifolia*) inlaid with ivory, made by a firm of Muhammadan wood-carvers (Ali Muhammad and Muhammad Makdúm) at Mysore were added to the existing collection.

A selection of arms from the old Tanjore armoury was added to the collection already exhibited on the staircase leading to the art gallery. It is much to be regretted that the Museum possesses no suitable space in which this beautiful collection of arms can be displayed in its entirety.

A brass model of a caparisoned elephant was acquired by purchase, and its purchase nearly involved a law suit.

A large case was made, in which to exhibit the collection of Hindu musical instruments, which was sent on loan to the Indo-Colonial Exhibition, 1886. Arrangements were in progress at the end of the year for obtaining, through native musicians, additions to the collection, in order that it may correspond with and be illustrative of C. R. Day's 'Music and Musical Instruments of Southern India and the Deccan,' 1891.

12. Coins and Medals.—A specimen in silver of the medal given by the Government of India to the Native troops who were engaged in the Burmese War, 1824–25, was received from the Right Honorable the Secretary of State for India.

No important find of coins in Southern India during the year has to be recorded. The Museum was, as usual, indebted to the Asiatic Society of Bengal for a large number of coins of Northern India, which included coins of the Andhra and Kalachuri dynasties, the Pathán Sultáns of Delhi, the Moghul Emperors, and the Independent Sultáns of Bengal.

A note on the history of the East India Company coinage from 1753—1835, based on a detailed examination of the records of the Calcutta Mint during my residence in Calcutta, was published in the Journal, Asiatic Society of Bengal (volume LXII, part I, No. 1, 1893), and forms an appendix to my 'History of the Coinage of the East India Company' (Madras, 1890).

The Museum collection of coins of the East India Company was enriched by the purchase of a small collection, which includes a dollar counter-struck with the die of a double Arcot rupee; leaden double pice, Bombay; copper pice; leaden two cash and silver fanam of Charles II; and silver three fanam and double fanam of George I.

13. Mineral Gallery.—During my absence the compact index collection of minerals, which was exhibited in special cases, became incorporated with the collection of minerals from Southern India, and the collections of minerals, rocks, and ores were re-arranged in such a way that they no longer correspond with the published catalogue either in system of arrangement or in numerical sequence. The confusion has been to some extent remedied by the separation of the index from the local series, and their re-arrangement in new cases; but, to remedy it entirely, new labels will have to be printed for the entire collection of minerals, rocks, and ores, and a new catalogue prepared, as a basis for which the existing catalogue is of no use.

A miscellaneous collection of extra-Indian fossils, which had been set apart in a store-room as unsuited for exhibition, re-appeared in the mineral gallery during the last two years. The policy pursued in previous years was to organise the Museum on a geographical basis, and to make it fulfil the requirements of a reference guide to the natural history, arts, economic resources, etc., of Southern India, supplemented in the case of the natural history sections (animal and mineral) by an elementary or introductory series (index collections) "by which the leading features of the structure of typical members of the various groups are demonstrated in a clear and simple manner, and the terms used in describing them explained by means of illustrative examples." This being the policy, I gladly recommended the adoption of a proposal by the Principal of the Presidency College that the collection of extra-Indian fossils should be transferred to the college for educational purposes; and the proposal was sanctioned by G.O., No. 186, dated 19th March, 1894.

The empty space down the centre of the mineral gallery has been partially filled up by table-cases, in which were exhibited large specimens of quartz, mica from the Nellore mica mines, corundum from Hunsúr, jasper, steatite, and crushed and uncrushed conglomerate from the Hyderabad diamond mines. I am very anxious to obtain other large specimens of rocks and minerals as a supplement to the small hand-specimens exhibited in the serial cases.

A large relief map of India has been transferred from the library to the mineral gallery, where it serves as a guide to the physical conformation of the country.

14. Phosphatic Nodules.—A report on a further examination of the area in which phosphatic nodules are to be found in the Trichinopoly district was submitted to Government by Dr. Warth, and recorded in Resolution, Mis. No. 4856, dated 14th August, 1893. Dr. Warth states that his original estimate of the amount (4,000 tons) of the nodules to be found on the surface in the area concerned is confirmed by his more recent detailed examination. He has also, by means of a series of trial pits sunk across the field, arrived at the conclusion that, in the beds on which nodules may be found at the surface, they are to be found diffused to the amount of 28 lb. per 100 cubic feet. The area of the field is about 10 square miles, in which the nodule-bearing beds are exposed; and, at the above rate, the quantity obtainable within 200 feet of the surface would be 7 million tons. The quantity available is therefore very large; and, if it could be worked out at an economical rate, the deposit would become very valuable. The main question at present to consider is, therefore, the cost at

which the nodules could be raised and delivered at Trichinopoly, or any other large centre. Dr. Warth thinks that the cost would be very high—about Rs. 20 a ton.

15. Hercynite.—Specimens of this mineral (iron-spinel) were received, through the Collector of Coimbatore, from the Erode taluk of the Coimbatore district.

The occurrence of hercynite in India has, I believe, not been previously recorded; and specimens were accordingly distributed to other Museums.

16. Argillite.—Samples of argillite of different colours from Yettanhatti in the territory of the Raja of Sándur were sent to the Museum by Mr. R. Sewell, Collector of Bellary. It is said that this rock was at one time extensively used for the manufacture of vessels for domestic use, and that when burnt the result is a hard, durable, fine-coloured terra-cotta ware. A series of small articles was made from the samples, properly burnt and treated at the Madras School of Arts, with a view to judging how far it might be advisable to attempt to revive the industry.

17. Felspar.—A sample of felspar, from Hampaságaram in the Hadagali taluk of the Bellary district, was also sent to the Museum by Mr. Sewell, who stated that some of it burned very well at the School of Arts, and helped to make a very strong floor-tile. The sample was submitted to the Consulting Architect to Government, who stated that "the red felspar is of the same quality as the grey felspar obtainable in the vicinity of Madras. The red colour is only a surface colouring, and disappears when burnt."

18. Corals.—The large and beautiful collection of reef-building corals from the reefs which fringe the Madras coast of the Gulf of Manaar, made during my repeated visits to Rámésvaram island and Tuticorin, has been arranged in wall and table cases in the marine gallery. To Dr. Ortmann, of the Strassburg Museum, the thanks of Government are due for his kindness in undertaking the identification of many of the specimens, a task which he was well qualified to fulfil, as he had previously worked out the corals from the reefs of the Ceylon coast of the Gulf.

Most conspicuous amongst the exhibited spicimens is a solid mass of *Montipora exserta*, Quelch, brought up by the divers from the Tuticorin pearl-banks at a depth of about 9 fathoms, which measures 38 inches in length and 33 inches in width.

19. Crustacea.—An account of the large collection of decapod and stomatopod crustacea made by me in the Gulf of Manaar, which comprises 160 species (10 described for the first time) was included by Mr. J. R. Henderson in his 'Contribution to Indian Carcinology' (Trans. Linnean Society, May 1893). The majority of the specimens which were taken to Europe for purposes of identification and illustration have been returned to the Museum, and arranged ready for incorporation in the exhibited collection of crustacea.

20. Mollusca.—A portion of the collection of molluscan shells made by me in the Gulf of Manaar, which was sent to Dr. E. Von Martens, of the Berlin Natural History, in 1891, has been arranged and incorporated with the existing collection of shells of marine and fresh-water molluscs of Southern India. The exhibited collection will be considerably increased as the result of the recent tour on the west coast, where a large number of species were obtained, which are not at present represented in the Museum collection.

21. Fishes.—A series of brightly-coloured fishes, which were preserved at Pámban by Mr. A. Haly's glycerine process in 1888, still retain their colours so perfectly that a very good idea can be formed of their colouration during life.

The wall cases previously occupied by the spirit collection of fishes have been glazed and utilised for the exhibition of big fishes from the sea and fresh waters of Southern India. Conspicuous among these is a specimen of the thorn-backed *Urogymnus asperrimus*, measuring 2 feet across the disc.

A specimen of *Dicerobatis eregoodoo* with a lateral expanse of 5 feet 8 inches, caught in a fishing-net off Madras, has been preserved. This species is said to attain to 18 feet and upwards across the disc.

22. Birds.—Most worthy of mention amongst the additions to the collection of birds are (*a*) Purple coot (*Porphyria poliocephalus*), water-cock (*Gallicrex cristatus*) and pin-tailed snipe (*Gallinago stenura*), which were killed by striking the Santapillay lighthouse on the east coast during the north-east monsoon; (*b*) a female crested

serpent eagle (*Spilornis cheela*), which was found with nest and eggs within the limits of Madras City. This bird is recorded by Jerdon ('Birds of India') as being "by no means rare in well-wooded and irrigated districts; most numerous in jungly countries" —conditions which do not exist within the City of Madras.

23. Mammals.—The skull and lower jaw of a small specimen of the great Indian fin-whale (*Balænoptera indica*), which was cast ashore dead at Velangani, about 12 miles south of Negapatam in July, 1893, have been preserved at the Museum. The whalebone is however absent, having been removed by natives before the arrival of the taxidermists on the spot.

The skeleton of the rhinoceros which lived for many years at the People's Park has also been preserved. No cause of death was ascertained; but the stomach contained various current copper coins.

24. Spirit Collections.—The spirit collections of fishes, reptiles, and batrachians have been removed from the galleries to a store-room, not only because the space occupied by them was required for other collections, but because they are more fitted for the purposes of a reserve or study series than for exhibition. Some of the more attractive specimens (*e.g.*, cobra, Russell's viper, big frogs, a series showing tadpole metamorphoses, etc.) are, however, still exhibited on wall-brackets.

25. Cobra Poison.—Thirty-six grains of cobra poison (fluid) were obtained by expression from the poison glands of six cobras, at the request of the Principal Medical Officer, Madras Army, for consignment to the Director-General, Army Medical Department, War Office.

26. Library.—The number of visitors to the Library was 6,900 against 6,622 in 1892–93.

The following is a summary of the additions :—

Presented by Government	148
Presented by private individuals	239
Acquired by purchase	372
British Museum publications	10
Patent office papers	140
Periodicals	60
Record publications of the Master of the Rolls	7
Parliamentary papers	76

Madras,
4th May 1894.

(Signed) EDGAR THURSTON,
Supt., Govt. Museum.

APPENDIX A.

Visitors to the Government Museum from 1st April 1893 to 31st March 1894.

1893-94.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Cinghalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	2,019	531	413	1,799	4	2	74	49	..	..	40	29
May	2,380	660	238	1,875	..	10	25	109	..	..	60	3
June	2,667	977	314	2,354	8	14	34	172	..	2	49	23
July	1,235	429	319	2,733	20	..	15	31	..	..	38	7
August	712	624	304	3,613	21	..	42	65	..	..	67	5
September	663	857	341	3,036	7	..	71	112	8	..	74	..
October	621	813	302	3,098	7	6	43	111	..	..	59	..
November	524	723	290	2,272	8	10	46	54	..	..	59	..
December	526	1,562	347	5,733	29	14	54	89	..	..	22	..
January	887	1,042	356	4,001	38	8	111	103	..	2	61	..
February	435	687	287	2,526	8	2	57	68	..	..	36	1
March	567	675	271	2,966	29	..	44	37	..	..	33	..
Total ..	13,236	9,580	3,782	36,006	179	66	616	1,000	8	4	598	68

1893-94.	Total of signatures.	Unable to sign, but tally kept.	Total of visitors.	Number of		Total of visitors.
				Men and boys.	Women and girls.	
	14	15	16	17	18	19
April	4,960	17,992	22,952	13,775	9,177	22,952
May	5,360	17,339	22,699	13,548	9,151	22,699
June	6,614	24,377	30,991	18,543	12,448	30,991
July	4,827	18,126	22,953	13,513	9,440	22,953
August	5,453	21,473	26,926	15,730	11,196	26,926
September	5,169	19,155	24,324	14,173	10,151	24,324
October	5,060	19,558	24,618	14,630	9,988	24,618
November	3,986	12,381	16,367	10,565	5,802	16,367
December	8,376	29,115	37,491	21,594	15,897	37,491
January	6,609	35,771	42,380	22,705	19,675	42,380
February	4,107	13,612	17,719	10,870	6,849	17,719
March	4,622	17,070	21,692	13,201	8,491	21,692
Total ..	65,143	245,969	311,112	182,847	128,265	311,112

B.

GENERAL LIST OF THE DONATIONS, 1893-94.

Anantapur district, Collector—
Corundum from various places in the Anantapur district.

Asiatic Society of Bengal—
Coins of the following Pathán Sultans of Delhi found in the Hissar district :—
Ala-ud-din Muhammad Sháh.
Qutb-ud-din Mubárak Sháh.
Ghiyas-ud-din Tughlaq Sháh.
Muhammad II bin Tughlaq.
Ghiyas-ud-din Balban.
Jalal-ud-din Firúz Sháh.

Silver coins of the following issues :—
From the Kamrup district.
1. Provincial Bengal issue.
Ghiyas-ud-din Bahádur Sháh.
2. Independent Bengal issues.
Shams-ud-din Mubárak Sháh.
Sikundur Sháh.
Ghiyas-ud-din Azam Sháh.

From the Sibságar district.
Provincial Bengal issues.
Ghiyas-ud-din Bahádur Sháh.
Independent Bengal issues.
Rukn-ad-din Barbak Sháh.
Ala-ud-din Hussain Sháh.

Rupees of the following "Independent Sultans of Bengal" found in the Bhagalpur district :—
Sikandar Sháh bin Ilyás.
Ghiyas-ud-din Azam Sháh.
Jalál-ud-din Muhammad Sháh.
Nasir-ud-din Mahmúd Sháh.

Found in the Jessore district.
Sikandar Sháh bin Ilyás.
Ghiyás-ud-din Azám Sháh.

Silver coin of Shah Jehán found in the Cuttack district.

Copper coins of the Andhra or Andhra Chritya dynasty found in the Chanda district—
Siri Satakani Gotami Putra I.
Siri Pudumair Vasithâ Putra.
Siriyaña Satakani Gotami Putra II.

Silver coins of Akbar, Jahánghir and Sháh Jehán found in the Champaran district.

Coins of mixed metal belonging to kings of the so-called Kalachuri dynasty of Chedi found in the Chattisgarh district—

Jájalla Deva.
Ratna Deva.

Atheseum Pillay, T.G.—
Sandstone from Tiruvakkarai, South Arcot district.

Berry, P., Esq.—
Fish (*Antennarius nummifer*).
Crested serpent eagle (*Spilornis cheela*).

Branfoot, Surgeon-Major, A. M.—
Nest of Vespa cincta (Hornet).

Carter, H. R. P., Esq.—
Snakes from the Palni hills.
Lizard (*Hemidactylus triedrus*).
Scolopendra sp.
Crocodilus palustris.
Brown-headed kingfisher (*Halcyon teucocephalus*).

Coimbatore district, Collector—
Garnet from Sivamallei, Dharapuram taluk.
Garnets from Chennimallei, Erode taluk.
Black spinel called hercynite, from Chennimallei, Erode taluk.
Zircon and Corundum from Chennimallei, Erode taluk.
Corundum from Kanjikovil, Erode taluk.
Corundum from Kamundapalli, Bhavani taluk.
Corundum from Nerinipett, Bhavani taluk.

Coimbatore North, District Forest-officer—
Mineral (hercynite) from Chennimallei, Erode taluk.

Dumergue, J. W. F., Esq.—
Cow bison.

Elliott, Dr.—
Skin of scaly ant-eater (*Manis pentadactyla*).

Ennore circle, Inspector of Salt and Abkári—
Salt from the Vallur factory.
Stones found in the banks of the channels at Ennore.

Gamble, J. S., Esq.—
Bamboo herbarium specimens.

Godávari district, Collector—
Buddhist silver coins.

Gray, F. W., Esq.—
Quartz containing gold from Nundydroog mines, Kolar.

Henderson, J. R., Esq.
Snake (*Cerberus rhynchops*).

Holland, T. H., Esq.—
Mineral (norite) from St. Thomas' Mount.

Huddleston, W. Victor, Esq.—
Spider (*Mygale fasciatus*).

Jardine, W. E., Esq.—
Skin of hyæna (*Hyæna striata*).
Skin of otter (*Lutra nair*).
Skin of wild boar (*Sus cristatus*).
Grass plaited bracelets and necklaces.

King, G., Dr.—
Herbarium specimens.

Kistna district, Collector—
Garnet.
Corundum from Guntúr.

Kurnool district, Collector—
Corundum.

Longhurst, Mrs.—
Queen white-ants.

Mahomed Abdus Sameth Kader Sahib—
Chin water-proof covering.

Mahomed Hussein Sahib—
Corundum from Chingleput.

Malabar district, Collector—
Corundum from Palghát.

Municipal Commission, Madras, President—
Lion.
Wild boar.
Fishing cat.
Lorry.
Ferret.
Tapir.
Monkey.
Rhinoceros.
Leopard.
Emu.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

North Arcot district, Sub-Collector—
Granular quartz and hornblende rock.

Parry and Co.—
Asbestos.

Popert, E. P., Esq.—
Collection of timbers from the Pegu Circle, Burma.

Royal Asiatic Society (Bombay Branch)—
Silver coins of Sháh Jehán, Jehángir, Aurangzib, and Muhammad Sháh.

Secretary of State for India, Right Honorable—
Silver medal given by the Government of India to the native troops, who were engaged in the Burmese war, 1824–25.

Sewell, R., Esq.—
White and bluish quartz with gold from an old gold working at Yettanhatti, Bellary district.
Talcose schist found amongst the Vijayanaggar ruins near the old palace.
Argillite from Yettanhatti, Bellary district, said to have been extensively used for making vessels for domestic use, as chatties, goglets, &c.

Shelley, Captain, A. D. G.—
Sack of shells from Tranquebar.

Simon, F. H., Esq.—
Mica from Virginia U. S.

Simpson, Captain H. B.—
Shells of *Mytilus viridis*.

Small, Mrs.—
Bones of leopards (*Felis pardus*).

Smyth, T. W. S., Esq.—
Sandy concretions with vegetable matter (roots?) from low sandy ridge at Duggirala, Kistna district.

South Arcot district, Collector—
Datchanamúrthi idol.
Chandikeswarar idol.

South Canara, Collector—
Corundum from Hire Bandadi and Bandaru Bandadi, South Canara.

Trichinopoly district, Collector—
Copper coins called kollikasa.

Tytler, F. W., Esq.—
Tasar moths, cocoons' and gut made from tasar silk.

Vurtharaja Moodelliar, M.—
Yellow-breasted ground-thrush (*Pitta bengalensis*).

Vencataramanuja Iya, P.—
Kestril (*Tinnunculus alaudarius*).

C.

DONATIONS TO THE LIBRARY.

Standard Works.

Agricultural Department, Burma, Bulletin No. 1.—Names of the principal Field Crops grown in Burma, 1894.
Agricultural Ledger Series (Hyderabad) No. 1.—Names of the Field Crops grown in the Hyderabad Assigned Districts, 1894. 2 copies.
Agricultural Ledger Series, Government of India, Nos. 1 to 13, 1893.
Archæological Drawings.—Selected Plates with Text (technical Art Series) Nos. 12 and 13, 1892, and Nos. 1 to 12, 1893.
Army (Annual) Act, 56 Vict., Chap. 4, 1893.

Baden-Powell, B. H.—Land-systems of British India, 1892. 3 volumes.
Balgovind Dikshit.—Alphabetical list of Photographs in the North-Western Provinces and Oudh, Provincial Museum, Lucknow, 1892.
Bailey, V.—Agricultural Department United States, Bulletin No. 4, The Prairie Ground Squirrels or Spermophiles of the Mississippi Valley, 1893.
Basset, R.—Rapport sur les Etudes Berbéres, Ethiopiennes et Arabes, 1887—1891.
Bell, F. J.—Catalogue of the British Echinoderms in the British Museum, 1892.
Bent, J. T.—Early Voyages and Travels in the Levant, 1893.
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Bidie, G.—Abstract of the Proceedings of the seventh International Congress of Hygiene and Demography, 1893.
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D.

CLASSIFIED LIST OF EXPENDITURE OF THE GOVERNMENT MUSEUM DURING THE YEAR 1893-94.

	Actuals, 1893-94.	Revised estimate, 1893-94.
	Rs.	Rs.
Salaries.		
Superintendent	* 9,891	9,600
Permanent Establishment.		
First Assistant, Second Assistant, First, Second and Third Taxidermists, Herbarium Keeper, Artist, Writer, Librarian, Assistant Librarian, Head Humal, Superintendent's peon—12 persons	5,028	5,028
Temporary Establishment.		
Assistant writer, Draftsman, 3 carpenters, 12 humals, chickledar, 3 gardeners, collecting taxidermist, 2 sweepers, 4 watchmen, water-pandal Brahmin, office peon, 2 punkah-pullers—32 persons	3,235	3,248
Total, Establishment ...	8,263	8,276
Allowance.		
Travelling allowance	1,465	1,000
Supplies and Services.		
Cost of specimens purchased on tour	624	1,000
Cost of specimens, objects of interest and coins at head-quarters	712	700
Preparation of fittings, furniture, &c.	1,875	2,388
Total, supplies and services ...	3,211	4,088
Cost of books and publications	2,054	1,800
Contingencies.		
Purchase and repair of furniture	200	200
Binding books and lithographing plates	782	800
Rents, rates and taxes	1,098	1,098
Freight, boat hire, railway fare and cartage charges ...	265	200
Miscellaneous and contingent charges	666	481
Service postage stamps and telegram charges ...	138	200
Kerosine-oil grant	...	30
Total, contingencies ...	3,149	3,009
Grand Total ...	28,033	27,773

* Exclusive of the Exchange compensation allowance of Rs. 900.

E.

DETAILED STATEMENT OF THE MUSEUM ESTABLISHMENT.

Designation.	Pay. Rs.	Rs.
Permanent.		
1. First Assistant		60-2-70
2. Second Assistant		35-3-50
3. Writer		30-1-35
4. Assistant Writer		15
5. Librarian		25-1-30
6. Assistant Librarian		12-1-17
7. Herbarium Keeper		50-2-60
8. Artist		45-1-50
9. Head Taxidermist		55-1-60
10. Second „		25-1-30
11. Third „		20-1-25
12. Head Humal		13
13. Second „		12
14. Third „		11
15. Fourth „		10
16. Fifth „		10
17. Sixth „		9
18. Seventh „		9
19. Eighth „		9
20. Ninth „		8
21. Tenth „		8
22. Eleventh Humal		8
23. Twelfth „		8
24. Thirteenth „		8
25. Superintendent's peon		12
26. Peon		7
27. Chickledar		9
Temporary.		
28. Draftsman		20
29. Collecting taxidermist		9½
30. Head gardener		7½
31. Second „		7
32. Third „		5
33. Sweeper		4
34. Do.		4
35. Water-pandal Brahmin		5
36. Night watchman		7
37. Do.		7
38. Do.		7
39. Day watchman		7
40. Punkah-puller		5
41. Chokra		4½
42. Carpenter		15
43. Do.		8
44. Do.		8

(Signed) EDGAR THURSTON,
Superintendent, Government Museum.

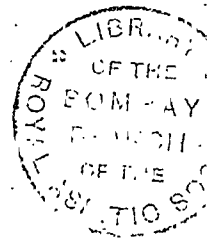
ADMINISTRATION REPORT

OF THE

MADRAS GOVERNMENT MUSEUM

FOR THE YEAR

1894-95.



MADRAS:
PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS.

1895.

BOMBAY BRANCH
OF THE
Royal Asiatic Society.
CLASS

ADMINISTRATION REPORT

OF THE

MADRAS GOVERNMENT MUSEUM

FOR THE YEAR

1894-95.

H. L. K. 6

MADRAS:
PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS.

1895.

ADMINISTRATION REPORT

OF THE

MADRAS GOVERNMENT MUSEUM

FOR THE YEAR 1894-95.

The policy of organizing the museum collections primarily on a geographical basis with reference to the southern portion of the Indian peninsula was continued during the year under review. In bulletin No. 2, I have stated that "for the great mass of visitors to museums in India, who come under the heading of sight-seers, and who regard museums as *tamâsha* houses, it matters but little what exhibits are displayed, or how they are displayed, provided only that they are attractive. I am myself repeatedly amused by seeing visitors to the Madras museum pass hurriedly and silently through the arranged galleries, and linger long and noisily over a heterogeneous collection of native figures, toys, painted models of fruit, &c. But, in addition to the sight-seers, those have to be considered who regard Museums in the light of institutions where they should be able to acquire solid information." That the policy alluded to above is appreciated is shown by the increasing number of individuals who utilise the museum for educational purposes, or for reference in connection with natural history, economic, and other subjects.

2. VISITORS.—The total number of visitors to the museum rose from 311,112 in 1893–94 to 368,282 in the year under review. The greatest number of visitors on a single day was 36,537 at the feast of pongal (January 15th). It is to the credit of the enormous crowd which was collected in the building at one time on that day that no damage was done to any of the exhibits unprotected by glass. The museum grounds presented the appearance of a fair, occupied as they were by a swarm of natives in gay holiday attire, vendors of sweetmeats, fruit, toys and ballads, jugglers, mendicants and others.

The following tabular statement shows the rise and fall in the number of visitors to the Madras museum since 1886–87, and the natural fluctuations of the number of visitors to a public institution such as a museum, as illustrated by statistics of the British museum, natural history:—

Madras Museum.		British Museum.	
1886–87	233,028		
1887–88	264,182		
1888–89	337,801	1888	372,802
1889–90	378,234	1889	361,046
1890–91	364,542	1890	355,682
1891–92	361,452	1891	375,906
1892–93	341,238	1892	351,917
1893–94	311,112	1893	408,208
1894–95	368,282		

In reviewing the administration report of the museum for the year 1893–94, the Indian Journal of Education made the shrewd suggestion that the gradual fall in the number of visitors from 1891—1894 might be accounted for by the fact that they were famine years, which consequently prevented the poorer people, who visit such institutions for amusement, from frequenting the museum.

The number of gosha ladies who visited the museum during the year was 2,254 against 1,524 in the preceding year.

3. ESTABLISHMENT.—The second taxidermist retired on pension, and the third taxidermist was promoted to the post thus rendered vacant. To fill the place of the third taxidermist, a man was transferred from the temporary to the permanent establishment.

Other changes were caused by the death and retirement of two gallery attendants, and by the dismissal of the chickledar (cleaner of arms). Four temporary appointments, viz., assistant draftsman and three carpenters, were abolished. A young man was temporarily employed with the object of making a collection of the butterflies of Madras city, and attending to the live animals referred to in paragraph 15.

A wild boar's tusk was stolen from one of the index cases, but though I suspected one of the gallery attendants, I was unable to convict him.

4. BUILDINGS AND GROUNDS.—The museum building and the Superintendent's and head taxidermist's quarters underwent general repairs during the year, and the exterior of the museum was painted red, so as to be in harmony with the red brick of the new buildings, with which the museum was connected by a portico and spacious entrance hall. A large number of trees were cut down, so that the view of the new buildings from the Pantheon road may not be obstructed.

5. NEW BUILDINGS.—In July, 1894, I served on a committee appointed by Government to consider the question of the final management of the museum, Connemara library, and technical institute. One of the proposals made by the committee was that the collection of arms, &c., now in the Arsenal of Fort St. George, under the charge of the Inspector-General of Ordnance, might be transferred to the new buildings. Under orders from Government, and with permission from the Inspector-General of Ordnance, I was deputed to draw up a list of such of the objects of public interest as it may appear desirable to remove to the new building, for submission to the Director-General of Ordnance in India. The collection, it may be observed, includes a large number of guns and arms captured during the wars of the East India Company, and the cage in which Captain Anstruther was confined in 1840. The romantic story of his confinement has been recently described, with a picture of the cage, by Dr. Stanley Lane Poole in the *English Illustrated Magazine*, November, 1894.

6. PUBLICATIONS.—The following publications were issued during the year:—

Catalogue of Roman, Indo-Portuguese and Ceylon Coins (2nd edition, revised with additions).

Bulletin No. I, Pearl and chank fisheries of the gulf of Manaar.
" " II, Notes on tours along the Malabar coast.
" " III, Rameswaram island, and fauna of the gulf of Manaar.

Guide to the Natural History (including mineral) Galleries (2nd edition, revised with additions).

Library Catalogue.

Bulletin No. IV, dealing with the anthropology of the Todas and Kotas of the Nilgiris, was going through the press at the end of the year, and some of my photographs, illustrative of these tribes, were being reproduced at the Madras Survey office, and in "half tone" by the Methodist Episcopal Publishing House, which has recently commenced work in Madras.

In connection with the catalogue of Roman coins, Sir John Evans writes to me that the gold coin of Severus (page 9) with legend PROVIDENTIA and head of Medusa is "worth looking after." This coin was recorded from a find of Roman aurei at the village of Darphal, about fifteen miles from Sholapur, in 1840; but I have unfortunately been unable to trace its subsequent career.

7. ARCHÆOLOGY.—The portion of the rail of the Amarávati stupa, referred to in the report for 1892–93, was erected in the annexe leading into the archæological gallery, and surrounded by a wooden railing carved so as to be in harmony with the design of the sculptured rail.

Framed pictures, illustrating the locality of the Amarávati stupa on the south bank of the Kistna river, and plans of the stupa were exhibited in the gallery.

One of the marble slabs, excavated by Mr. Rea of the Archæological Survey, near Pedda Ganjam in the Kistna district, in 1890, which was left behind when the remainder of the slabs were removed to the museum, was received during the year.

The following copper grants, of which an account has been published in the *Epigraphia Indica*, volume III, were received from Dr. E. Hultzsch, Government Epigraphist:—

Three Buguda plates of Madhava Varman.
Do. Achyutapuram plates of Indra Varman.
Do. Chicacole plates of Devendra Varman.
Do. Alamanda plates of Ananta Varman.
Do. Vanapalli plates of Anna-Vema.
Do. Parlákimedi plates of Vajrahasta.

8. Numismatics.—As in my last report, there is no important find of coins in Southern India to place on record. The duplicate and reserve collection of coins, which was disarranged during my absence in Northern India, was to a great extent re-arranged, and catalogued in manuscript for the purpose of easy reference.

Various coins were acquired by exchange, among which may be noted the rare silver Indo-Danish 2 fano (date 1816) which was obtained by an amateur coin collector, together with several issues of other dates at Tranquebar; a copper *atia* (date 1750), and large *tutenag* Indo-Portuguese coins bearing dates 1765, 1777, and 1799.

To the Asiatic Society of Bengal and the Bombay branch of the Royal Asiatic Society the museum was indebted for many coins of Northern India, a list of which is given in Appendix B.

9. Botanical and Economic.—The preparation of an index collection, based on Asa Gray's "Structural Botany," to serve as a guide to students and those who are interested in the study of morphological botany, was in progress at the end of the year. The specimens for this collection were either collected locally or selected from the reserve specimens in the existing herbarium and economic series.

The herbarium keeper was deputed to Pulicat to collect a sample in bulk of wild chay-root (*Oldenlandia umbellata*) for transmission to Professor Hummel of the Leeds school of dyeing. The roots of the wild plant, it may be noted, are said to be preferable to those of the cultivated plant for dyeing purposes.

A collection was in course of preparation at the end of year illustrating the products of *Abroma augusta* and *Ægle marmelos* (bael fruit tree) for the Imperial Institute, London, and for the economic sections of the Calcutta and Madras museums. Collections were also made for future exhibition, illustrating, as completely as possible, the various uses to which the different parts of the palmyra palm, cocoanut, and bamboo are applied.

The South Indian specimens in the forest museum herbarium, which was removed to the museum in 1891, were transferred to the Government herbarium at Ootacamund.

10. Mineral Gallery.—The re-arrangement of this gallery, referred to in my last report, was completed. Specimens of amethyst, beryl (aqua-marine), cinnamon stone, crocidolite, emerald, opal, and ruby, were added to the index collection, which was largely resorted to by students for the purposes of study. The additions to the systematic collection of the rocks and minerals of Southern India included large typical specimens of quartz containing visible gold from the Mysore reefs mine, chlor-opal from the Palni taluk of the Madura district, and talcose schist from Vijayanagar, a large block of magnetite from Kanjimalai in the Salem district, and hand specimens of corundum from Karutapalliam in the Coimbatore district.

Many specimens of iron pyrites were submitted for report in the vain hope that the mineral might be gold, and numerous references were made relating to the commercial possibilities of mica from various parts of the Presidency.

One of my staff accompanied a member of the firm of Messrs. Arbuthnot and Co. to the phosphatic deposits of the Trichinopoly district to assist him in removing a sample for purposes of trial.

11. Anthropology.—An entirely new departure was made by the commencement of a detailed anthropological "survey" of the races, castes and tribes which inhabit Southern India. The progress of this enquiry must, inasmuch as my duties necessitate residence at head-quarters in Madras during the greater part of the year, be slow

and spasmodic. During a prolonged tour, the Todas and Kotas of the Nilgiris, the Muppas, Urāli Kurumans, and Paniyans of the Wynaad, and the Cherumans of Calicut were investigated by means of anthropometric observations and enquiry into their "manners and customs." Photographs were taken, and specimens of jewelry, clothing, domestic utensils, musical instruments, &c., acquired for the ethnological section of the museum, which, blended with the art section, is at present in a very rudimentary condition and capable of great expansion when space becomes available.

During my residence in Madras anthropometric observations of the local Brāhmans, Pariyas, Pallis, and the artisan castes (Kammālas) were recorded. The results of the "survey" will be published from time to time in the series of bulletins, and it is only necessary to state, for the purposes of an administration report, that sufficient evidence has been already collected to make it clear that they will prove at least of considerable interest, and, I trust, of value.

To the ethnological collection, exhibited for the present in the art gallery, were added framed photographs of the Todas, the horns of a Toda buffalo sacrificed at a dry funeral ceremony (kĕdu), a collection illustrating the jewelry and ornaments worn by the Cherumans of Malabar, and the collection of musical instruments referred to in my last report.

12. Mammal and Bird Gallery.—Considerable improvements were made in connection with this gallery, which, occupied only by cases containing melancholy rows of stuffed animals and birds, has always been the weak spot in the museum, open to adverse criticism. The appearance of the gallery was rendered more attractive to the casual visitor by means of framed photographs, coloured pictures, and wood-cuts of the mammals and birds of Southern India, and by the exhibition of heads of the larger horned animals (wild buffalo, Toda buffalo, sambar, and "bison") mounted on shields. In the centre and at the sides of the gallery large table cases have been placed, containing a group of Indian fox bats (flying foxes) on the branches of a tree, nests and eggs of the pariah kite and Indian crow in the forks of the trees on which the birds built, nests of the weaver bird pendent from the leaf of a palm, and a stuffed specimen of the peregrine falcon, labelled so as to teach the general terminology of plumage and limbs.

For the benefit of those who go out snipe-shooting in the cold season, and frequently ask for information concerning the different species, a case was arranged, illustrating the distinguishing characters of the pin-tailed, fan-tailed, jack, painted, and solitary snipe.

The monotonous appearance of the cases containing the stuffed animals was relieved by the addition of skeletons of the smaller mammals, and skulls and heads of the smaller horned animals (four-horned antelope, black buck, nilgai, spotted deer, and barking deer).

The index collection of mammals was supplemented by the addition of the skull of a goat, section of the skull of a sheep, and skeleton of a pariah dog, labelled so as to demonstrate the osteology, and the skull of a dolphin to illustrate piscivorous (fish-eating) dentition.

Considerable additions were made to the systematic collection of birds in the shape of stuffed specimens, and eggs mounted in neat glazed boxes. A special collection was in progress at the end of the year, illustrating the seventy different kinds of birds which are sold for food in the Madras bazaar.

An oyster-catcher (*Hæmatopus ostralegus*) which is rarely seen in the Madras market, was obtained there in October, 1894, and on the same day two specimens of the lesser coot-footed stint (*Phalaropus hyperboreus*) were also obtained there. As regards the latter, Jerdon records that "a single instance is on record of the occurrence of this bird in India. It was obtained by Dr. Stewart at Madras. Possibly it may be found to be more common when our sea coasts have been well examined."

Skins of the large hawk-cuckoo (*Hierococcyx sparverioides*) and the pond heron (*Ardeola leucoptera*), which were killed by striking the Santopilly Lighthouse on October 28th in a light rain and a very light north wind, were received for identification. Jerdon says of the former that "this very fine hawk-cuckoo is found throughout the Himalayas, and during the cold weather, at all events, on the Nilgiris."

The following measurements in inches of the horns of "bison" (*Bos gaurus*), the one shot some years ago by Mr. Ditmas, the other recently shot by Mr. Cook on the Palni Hills and exhibited on loan, may be placed on record:—

	Cook.	Ditmas.
Widest span	33·5	*36·75
Between points	31	35·5
Round base	19	18
From point to point across forehead	65·5	62

13. Reptiles and Batrachians.—The following were added to the existing collection in the annexe between the main hall and mammal gallery:—

Bungarus cæruleus. The krait.
Sea snake (*Hydrophis spiralis*) showing the flattened, oar-shaped tail.
The burrowing batrachians, *Ichthyophis glutinosus* and *Uræotyphlus oxyurus*, from Malabar.
} Spirit specimens.

Skeleton and stuffed specimen of *Varanus bengalensis* (the monitor), and skull showing the parietal foramen for the pineal eye.

Skeleton of cobra showing the ribs, by the action of which the hood is expanded.

Skeletons of tank frog (*Rana hexadactyla*), articulated and disarticulated, and labelled so as to demonstrate the osteology.

Stuffed specimen of *Crocodilus palustris* from Malabar.

14. Marine Gallery.—A collection illustrative of the fifteen species of fish, out of the large variety sold for food in the local fish market, which are considered fit to be eaten by Europeans in Madras, was exhibited in table cases. As I have stated in bulletin No. 2 (Note on tours along the Malabar coast):—"In India, even more than in Great Britain, the fish supply is essentially a poor man's question, and the prosperity of the fishing industry depends on the 'offal,' and not on the 'prime.' In the city of Madras the 'microscopic minority' of Europeans, who are regular fish-eaters, will go on year after year without seeing at their table any other fish than seir (several species of *Cybium*); pomphret, white, grey or black (*Stromateus sinensis*, *S. cinereus* and *S. niger*); the so-called 'whiting' (*Sillago sihama*); and perhaps an occasional flat-fish (*Psettodes erumei*), which is a poor substitute for the British sole."

A series of specimens was exhibited illustrating the anatomy of the pearl "oyster" of the Tuticorin banks, and the position in which the pearls are deposited, and among other additions may be noted a specimen of drift timber from Mahabalipuram (Seven Pagodas) studded with cirrhiped crustacea (*Lepas*), and a very large specimen of the crustacean *Panulirus dasypus* caught in a fishing net off Madras.

15. Live Animals.—The new entrance hall leading into the main hall has been utilized for the exhibition, in suitable cages, of a variety of animals (mostly snakes) which live in Madras or its vicinity. These have proved to be not only a very great source of attraction to visitors, both educated and uneducated, but also useful for the purpose of study of their habits and distinguishing characteristics. The animals exhibited at the end of the year were—

Mammals.—Loris gracilis, male and female.
Lizards.—Chamæleon calcaratus, male and female.
Snakes.—Dryophis mycterizans. Whip snake.
Eryx johnii. Sand snake.
Gongylophis conicus. Sand snake.
Lycodon aulicus.
Python molurus. Rock snake.
Tropidonotus stolatus.
Vipera russellii. Daboia.
Zamenis mucosus. Rat snake.

A cobra was selected for exhibition, but withdrawn from view, as I feared the terrifying effect produced on youthful visitors by the sight of it erecting itself, and striking violently against the plate glass sides of its case.

* The right horn of Mr. Ditmas' specimen is deformed, and the point broken off, so the measurement between the points is not a true register, and would have been appreciably less if the horn had been entire.

16. LIBRARY.—During the latter part of the year more interesting work had to give way, with a view to the approaching transfer of the museum library to the Connemara free library to the monotonous task of cataloguing (on manuscript slips) the books and "serials" which have accumulated since 1890, and in co-ordinating the printed catalogue and mansuscript slips under 43 subject headings.

Under instructions from the Chief Secretary, I selected, for transfer to the Connemara library, a large number of books contained in the library of the Chief Secretariat, which were not required for current reference there.

The number of visitors to the Library was 6,989 against 6,900 in 1893-94.

The following is a summary of the additions :—

Presented by Government	537
Do. private individuals	146
Acquired by purchase	60
British Museum publications	8
Patent office papers	101
Periodicals	57
Record publications of the Master of the Rolls	7
Parliamentary papers	47

17. VALUABLE STOCK.—The necessary inventory of valuable stock was maintained and duly checked. The collections were all in good order at the end of the year.

MADRAS,
15th May 1895.

(Signed) EDGAR THURSTON,
Superintendent, Government Museum.

APPENDIX A.

VISITORS to the Government Museum from 1st April 1894 to 31st March 1895.

1894-95.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Maharatta.	Nagari.	Guzerati.	Canarese.	Chinese.	Cinghalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	393	372	660	2,508	4	..	22	41	..	..	48	11
May	501	1,133	327	2,949	24	..	31	122	4	..	83	..
June	588	942	646	3,150	7	..	20	81	..	..	38	29
July	508	1,054	338	3,466	7	4	32	85	..	..	71	..
August	726	1,022	405	3,105	14	3	49	89	6	..	56	..
September	654	1,245	328	2,924	14	..	43	98	4	8	65	..
October	382	613	289	3,479	4	..	22	38	..	1	34	4
November	488	1,004	396	3,260	7	1	20	109	..	..	42	..
December	507	1,726	609	3,892	63	..	140	218	2	..	164	35
January	627	2,699	421	4,737	51	8	101	130	..	3	86	25
February	638	998	445	2,770	14	1	42	58	6	1	37	1
March	622	995	948	2,625	15	1	61	52	15	..	150	30
Total ..	6,634	13,803	5,812	38,865	224	18	583	1,121	37	13	874	135

1894-95.	Total of signatures.	Unable to sign but tally kept.	Total of visitors.	Number of		Total of visitors.
				Men and boys.	Women and girls.	
	14	15	16	17	18	19
April	4,059	16,870	20,929	12,532	8,397	20,929
May	5,174	22,888	28,062	15,973	12,089	28,062
June	5,501	22,440	27,941	16,303	11,638	27,941
July	5,565	21,819	27,384	15,788	11,596	27,384
August	5,475	21,620	27,095	15,701	11,394	27,095
September	5,383	20,878	26,261	15,186	11,075	26,261
October	4,866	16,828	21,694	13,182	8,512	21,694
November	5,327	19,273	24,600	14,574	10,026	24,600
December	7,356	26,056	33,412	19,801	13,611	33,412
January	8,888	78,245	87,133	42,659	44,474	87,133
February	5,611	15,688	20,699	12,316	8,383	20,699
March	5,514	17,558	23,072	14,194	8,878	23,072
Total ..	68,119	300,163	368,282	208,209	160,073	368,282

APPENDIX B.

Donations, 1894–95.

Abraham, Mr. G.—
Java tobacco.

Asiatic Society of Bengal—
Silver coins of Ahmad Sháh, Alamgír II, and Sháh Jahán found at Patna.
Do. of Farrukh Siyar and Muhammad Sháh found at Kangra.
Do. of Muhammad Sháh found at Delhi.
Do. of Moghul, Assam and Jayantipur.

Moghul Coins—
Sháh Jahán.
Aurangzib.
Farrukh Siyar.
Muhammad Sháh.
Ahmad Sháh.
Alamgír II.

Assamese Coins—
Rudra Singh.
Old Assamese.

Jayantipur—
Silver coins of Ilyás Shah.
Gold coins of the following Kings of the earlier Gupta dynasty found at Muzaffurpur:—
Chandra Gupta II.
Samudra Gupta.
Copper coins of the following Sultáns of Delhi (so called Patáns):—
Ghiyás-ad-dín Balban.
Muazzad-ad-dín Kai-Kubád.
Jalál-ad-dín Firoz.
Alá-ad-dín Muhammad.
Kutb-ad-dín Mubárak.
Ghiyás-ad-dín Taghlak.
Muhammad bin Taghlak.

Atheseum Pillay, Mr. T. G.—
Land shells from South Arcot district.

Brown, Mr. A.—
Chamæleon (Chamæleon calcaratus) and eggs.

Burma, Revenue Secretary.
Madras rupee of the Arcot mint.

Bush, Mr. C. J.—
Twin cocoanut.

Cameron, Chisholm and Co., Quilon—
Shells, corals, and sea urchins from Tangacherri reef, Travancore.

Carter, Mr. H. R. P.—
Snake (Eryx Johnii).
Wasp's nest.

Cook, Mr. J. P.—
Nest and eggs of Indian edible-nest swiftlet (Collocalia nidifica).
Skin of large brown flying squirrel (Pteromys oral).

Evans, Surgeon-Major, J. W.—
Eggs of Pelican (Pelecanus philippensis).
Malabar fisherman's hat.

Fiddian, Mr. J. P.—
Frog (Cacopus systoma).

Hartnett, Mr. G.—
Painted bat (Cerivoula picta).

Henderson, Mr. J. R.—
Indo-Danish coin 2 fano. 1816.
Young crocodile (Crocodilus porosus).
Indian screech owl (Strix javanica).

Hultzsch, Dr. E.—
Copper Chicacole plates of Devendravarman.
Vanapalli plates of Anna-Vema.
Buguda plates of Madhavavarman.
Alamanda plates of Anantavarman.
Achyutapuram plates of Indravarman.
Copper Parlakimedi plates of the time of Vajrahasta.

Lushington, Mr. P. M.—
Snakes.—Rhinophis sp.
Typhlops sp.

Malabar District Collector—
Earthen pots and pieces of iron found in a cave in Kottuli Amsam, Calicut taluk.

Middlemiss, Mr. C. S.—
Corundum from Karutapallium, Coimbatore district.

Municipal Commission, Madras—
Tiger (Felis tigris).
Leopard (Felis pardus).

Norris, Mr. H. G.—
East India Company, quarter anna, dates 1830, 1832, 1833, 1835.
Indo-Portuguese, quarto de Tanga, 1884, 1886; octavo de Tanga, 1884, 1886.
Samanta Déva, silver coin.

Popert, Mr. E. P.—
Moringa pterygosperma, oil.
Argemone Mexicana, oil.

Price, Hon. Mr. J. F.—
Purple coot (Porphyrio poliocephalus).
Montague's harrier (Circus cineraceus), young female.

Rama Murti, Mr. B.—
Fan made of grain by Khonds.

Royal Asiatic Society (Bombay branch)—
Silver coins of Akbar, Sháh Jahán, and Jahangír found in the Kaira district.
Silver coins of Auranzíb, Muhammad Sháh, and Sháh Jahán, found in the Poona district.

Scantlebury, Captain—
Auriferous quartz from Mysore mine.

Shelford, Mr. E. J.—
Insect (Nepa grandis).

Stevenson, Mr. T. J.—
Jungle cat (Felis chaus).

Tate, Mrs.—
Snakes—
Tropidonotus stolatus.
Tropidonotus plumbicolor.
Dendrophis pictus.
Lycodon travancoricus.
Coluber helena.
Silybura sp.
Lizard—
Chamæleon calcaratus.
Arachnida—
Scorpions.
Centipedes.

Wedderburn, Mr. H. G.—
Snake (Simotes arnensis).

West, Mr. H. C.—
Snake (Hydrophobus nympha).

APPENDIX C.

Donations to the Library.

Standard works.

Acts and Regulations.—Madras Presidency List, 1894 and 1895.
Agricultural Department, Bengal.—Bulletin No. 1, List of the principal Crops grown in Bengal, 1895.
Agricultural Ledger Series, Government of India, 1892–94.
Alcock, A.—Guide to the Zoological Collections in the Invertebrate Gallery of the Indian Museum, 1894.
Do. Guide to the Zoological Collections in the Reptile and Amphibia Gallery of the Indian Museum, 1894.
Archæological Survey of India, Bower Manuscript. A. F. R. Hoerule, 1893–94.
Do. List of Architectural and Archæological remains in Coorg, Vol. 7, A. Rea, 1894.
Do. South Indian Buddhist Antiquities, Vol. 6, A. Rea, 1894.
Archives do Museu Nacional do Rio de Janeiro, Vol. 8, 1892.

Army Regulations, India, Vol. 1, Parts 1 and 2, 1893.
Art Conference, Lahore.—Proceedings, 1894.
Beale, T. W. and H. G.—Keene, Oriental Biographical Dictionary, new edition, 1894.
Bell, F. J.—Echinoderms of Macclesfield Bank, 1894.
Bhandarkar, R. G.—Search for Sanskrit Manuscripts in the Bombay Presidency. Report, 1894.
Blanford, W. F.—Letters, Extracts, Notices, &c., from the Ibis for October 1894.
Do. Notes on the Indian Owls, 1894.
Do. On some Genera of Oriental Barbets, 1893.
Do. On the Scientific and Generic Names of certain Eagles, 1894.
Botanical Survey of India—Report on a Botanical Tour in Kashmir, Vol. 1, No. 3, J. F. Duthie, 1894.
Botanical Survey of India—Notes on a Journey from Haveri to Kumta, and Notes of Tour in Travancore, Vol. 1, No. 4, G. M. Woodrow and M. A. Lawson, 1894.
British Medical Association—Transactions of the South Indian Branch, Vol. 5, No. 6, 1894.
British Museum Publications—
British Lichens, Part 1, J. M. Crombie, 1894
Catalogue of Arabic Books, Vol. 1, A.G. Ellis, 1894.
Catalogue of Birds, Vols. 22 and 23. W. R. Ogilvie. Grant and R. B. Sharpe, 1893-94.
Catalogue of Cuneiform Tablets in the Kouyunjik Collection, Vol. 3, C. Bezold, 1893.
Catalogues of Hindi, Panjabi, Sindhi and Pushto Printed Books, J. F. Blumhardt, 1893.
Catalogue of Fossil Plants of the Wealden Flora. A. C. Seward, 1894.
Catalogue of Seals in the Department of Manuscripts, Vol. 3, W. De G. Birch, 1894.
Bühler, G.—Siddapura Edicts of Asoka.
Calendar, Commission for Government Examinations, 1894-95.
California Academy of Sciences—Bibliography of the Palæozoic Crustacea, &c., 1893.
Do. Evolution of the Colors of North American Land Birds, 1893.
Do. Proceedings, Vol. 3, 2nd series, 1893.
Cameron, J.—Forest Trees of Mysore and Coorg, 1894.
Canadian Institute Transactions, Vol. 4, Part 1, 1894.
Census of India, 1891, Reports, Baroda.
Do. do. British Provinces and Feudatory States.
Do. do. Cochin.
Do. do. Madras.
Do. do. Mysore.
Do. do. North-Western Provinces and Oudh.
Do. do. Travancore.
Cincinnati Art Club, Fourth Annual Exhibition Catalogue, 1894.
Compton, H.—Particular Account of the European Military Adventures of Hindustan from 1784—1803, 1892.
Dixon, H.—List of Photographic Negatives, India Office, 1894.
Duthie, J. F.—Field and Garden Crops of the North-Western Provinces and Oudh, 1893.
Eliot, J.—Indian Meteorological Memoirs, Vol. 5, Parts 4 to 6, 1894.
Do. Instructions to Observers of the India Meteorological Department, 1894.
Do. Indian Meteorological Observations, 1893 to 1894.
Do. Indian Weather Review, Annual Summary, 1893.
Do. Monthly Weather Review, 1893 to 1894.
Do. Rainfall Data of India, 1893.
Elliot, Sir C. A.—Annual Address to the Asiatic Society of Bengal, 1894.
Field Columbian Museum—Historical and descriptive Account, 1894.
Ganga Datt Upriti, P.—Proverbs and Folklore of Kumaun and Garhwal, 1894.
Hampson, G. F. Fauna of British India, Ceylon and Burma. Moths, Vol. 2, 1894.
Haupt, O. Arbitrages et Parités, 7th edition, 1887.
Herdman, W. A.—Notes on British Tunicata, Part 2, 1893.
Hiersmann, H. W.—Museology and Collection.
Hooker, J. D.—Flora of British India, Vol. 6, Part 20, 1894.
Hooper, D. "Myrica Nagi," 1894.
Hultzsch, E.—Achyutapuram Plates of Indravarman.
Do. Alamanda Plates of Anantavarman.
Do. Vanapalli Plates of Anna-Vema.
India Office List, 1894.
Do. Records, Press List, 1700—1750.
Kielhorn, F. Kolhapur Inscription, Vijayaditya.
Do. do. Buguda Plates of Madhavavarman, 1890.
Kittel, F.—Kannada-English Dictionary, 1894.
Kolonial Museum, Haarlem, Bulletins.
Leighton, V. E. W.—Lecture on the Chances of finding a Coal-Field near Arkónam, 1894.
Lennie, W.—Principles of English Grammar, 1894.
Leprosy Commission in India, Report, 1890-91.
List of Notifications, Rules and Orders, which have the Force of Law, 1894.
Lungren, F. H. and Vincent Nowotty: Some Works of, in the Art Museum, Eden Park, 1894.
Manual of Arboriculture in the Punjab, 1894.

Manual of Administration of the Madras Presidency, Vol. 3, 1893.
Merriam, C. H.—North American Fauna, No. 8, 1895.
Moore, F.—Lepidoptera Indica, Vol. 2, Parts 18–20, 1894–95.
Mullaly, F. S.—Notes on Criminal Classes of the Madras Presidency, 1892.
Nisbet, J.—On Mixed Forests and their Advantages over Pure Forests, 1893.
Oldham, R. D.—Evolution of Indian Geography, 1893.
Pandita Devi Prasada.—Catalogue of Sanskrit Manuscripts in Oudh Province, 1890.
Peterson, P.—Catalogue of the Sanskrit Manuscripts in the Library of the Máhárája of Ulwar, 1892.
Postal Directory of the Madras Presidency, 1893.
Pratapa Chandra Ray.—Mahabharata, Parts 87 to 93, 1893–94.
Pringle, A. T.—Diary and Consultation Book of the Agent, Governor, and Council of Fort St. George, 1894.
Ramaswami Raju, P. V.— Sreemat Rajangala Mahodyanam in Sanskrit Verse with English Translation.
Rodgers, C. J.—Catalogue of the Coins of the Indian Museum, Part 1, Sultáns of Delhi, 1894.
Do. Catalogue of Miscellaneous Muhammadan Coins, 1894.
Royal Institute of British Architects.—Journal of Proceedings, 1893–94, Kalendar, 1893–94, 1894–95.
Royal Irish Academy, Cunningham Memoirs No. 10.—Decorative Art of British New Guinea. A. C. Haddon, 1894.
Do. Proceedings, 1893–94
Do. Transactions, 1893–94.
Rudio, F.—Vierteljahrsschrift der Naturforschenden Gesellschaft in Zurich, 1894.
Sarat Chandra Mitra.—Notes on the Chowk Chanda and Panchami Vrata.
Do. On some Beliefs in a Being or Animal which is supposed to guard Hidden Treasure, 1893.
Do. On some Superstitions regarding Drowning and Drowned Persons, 1893.
Do. On the Kabirpanthi Ceremonies.
Scollick, J. W.—On the making of Gelatin Casts.
Sharpe, R. R.—London and the Kingdom, 1894.
Smith, C. M.—Madras Meridian Circle Observations, 1880—1887.
Smithsonian Institution.—Reports, 1890—1892, 2 vols.
United States National Museum Bulletins Nos. 40, 43, 44, 45 and 46, 1893.
Smithsonian Institution.—Directions for collecting Birds, R. Ridgway, 1891.
Do. Do. for collecting and preserving Insects, C. V. Riley, 1892.
Do. Do. for collecting Recent and Fossil Plants, F. H. Knowlton, 1892.
Do. Do. for collecting Birds' Eggs and Nests, C. Bendire, 1892.
Do. Do. Reptiles and Batrachians, L. Stejneger, 1891.
Do. Do. Mollusks, and other useful Hints for the Conchologist, W. H. Dall, 1892.
Do. Notes on the Preparation of Rough Skeletons, F. A. Lucas, 1891.
Do. Proceedings, 1891–93.
Do. Reports, 1890, 1891 and 1892.
Do. Scientific Taxidermy for Museums, R. W. Shufeldt, 1894.
Stavanger Museum—Aarsberetning, 1893.
Svoronos, J. N.—Sur la Signification des Types Monetaires des Anciens, 1894.
Tukaram Tatya.— Sri Riksanhita and Commentary of Sayanacharya, 9 vols.
Venkayya, V.—Age of Rajarajadeva, 1894.
Do. Nallur Grant of Harihara.
Vibart, H. M.—Addiscombe, its Heroes and Men of Note, 1894.
Warner, W. Lee.—Protected Princes of India, 1894.
Watt, G.—Memorandum on the Resources of British India, 1894.
Webb, W. W.—Currencies of the Hindu States of Rajputana, 1893.
Welch, C.—History of the Tower Bridge, 1894.
Zay, E.—Historie Monetaire des Colonies Francaises.

By Gift (Periodicals).

Agricultural Department, Madras, Bulletins, 1894.
Asiatic Society of Bengal—Journal, 1894.
Do. Proceedings, 1894.
Bulletin of the American Museum of Natural History, 1893.
Fort St. George Gazette, 1894–95.
Geological Survey of India, Records, 1894.
Hindu Reformer, 1894–95.
Imperial Institute.—Hand-books of Commercial Products, Indian Section, 1893.
Indian Museum Notes, 1893.
Musical Herald, 1894–95.
Oesterreichische Monatsschrift fur den Orient, 1894–95.
Royal Gardens, Kew, Bulletin of Miscellaneous Information, 1894.
Royal Scottish Arboricultural Society, Transactions.

D.

CLASSIFIED LIST OF EXPENDITURE OF THE GOVERNMENT MUSEUM DURING THE YEAR 1894-95.

	Actuals, 1894-95.	Revised estimate, 1894-95.
Salaries.		
	RS.	RS.
Superintendent	9,600	9,600
Exchange compensation allowance	1,597	1,525
Total ...	11,197	11,125
Permanent Establishment.		
First Assistant, Second Assistant, First, Second and Third Taxidermists, Herbarium-keeper, Artist, Writer, Assistant Writer, Librarian, Assistant Librarian, thirteen Humals, Superintendent's peon, chickledar and peon—27 persons	6,623	6,783
Temporary Establishment.		
Draftsman, three carpenters, three gardeners, collecting taxidermist, two sweepers, four watchmen, water-pandal brahmin, punkah-puller and chokra—17 persons ...	1,177	1,040
Total, Establishment ...	7,800	7,823
Allowance.		
Travelling allowance	471	1,000
Supplies and Services.		
Cost of specimens purchased on tour	474	1,000
Cost of specimens, objects of interest and coins at head-quarters	535	700
Cost of books and publications	2,457	1,800
Preparation of fittings, furniture, &c., for the collections ...	2,500	2,347
Cost of European stores	46	41
Total, Supplies and Services ...	6,012	5,888
Contingencies.		
Purchase and repair of furniture	160	200
Binding books and lithographing plates	1,205	800
Rents, rates and taxes	1,098	1,098
Other charges—		
Freight, boat-hire, railway fare and cartage charges ...	1,161	711
Miscellaneous contingent charges		
Kerosine oil		
Service postage and telegram charges	198	200
Rounding off	...	55
Total, Contingencies ...	3,822	3,064
Grand Total ...	29,302	28,900

N.B.—The excess expenditure in the actuals over the revised estimate was provided for in the budget estimate of the year.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

ORDER—dated 2nd July 1895, No. 414, Revenue.

Miscellaneous.

The report shows that Mr. Thurston is sparing no efforts to make the museum more valuable and attractive.

2. The increase in the number of visitors to the museum during the year under report is gratifying.

3. The Government notes with satisfaction that a detailed anthropological survey of the races, castes and tribes of the Presidency has been set on foot. The results of Mr. Thurston's researches will be watched with interest.

4. The total expenditure for the year (Rs. 29,302) approximated the sanctioned grant (Rs. 29,380), but was more than the revised estimate by Rs. 402.

5. The thanks of Government are due to Mrs. Tate and the gentlemen, who by their kind contributions of books and articles of interest during the year, have materially added to the value of the museum collections.

6. The usual number of copies of the report will be struck off and sent to Mr. Thurston for distribution to other museums, &c.

(True Extract.)

(Signed) E. GIBSON,
Secretary to Government.

ADMINISTRATION REPORT

OF THE

MADRAS GOVERNMENT MUSEUM

FOR THE YEAR

1895-96.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY.

MADRAS:
PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS.

1896.

BOMBAY BRANCH
OF THE
Royal Asiatic Society.
CLASS

ADMINISTRATION REPORT

OF THE

MADRAS GOVERNMENT MUSEUM

FOR THE YEAR

1895-96.

A H K 6

MADRAS:
PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS.

1896.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY.

ADMINISTRATION REPORT

OF THE

MADRAS GOVERNMENT MUSEUM

FOR THE YEAR 1895-96.

In the last Annual report I briefly referred to the existing policy of organizing the Museum collections primarily on a geographical basis, with reference to the southern portion of the Indian Peninsula. Advantage was taken, during the year under review, of an invitation received from the Literary Society of Pachaiyappa's College, to select as a lecture subject "the Madras Museum as an aid to general and technical education." This lecture, though in popular language and delivered in my unofficial capacity, is reproduced in Appendix E, as it explains in detail my views as to the scope and objects of the Museum, and the lines on which its future development should be carried out.

2. VISITORS.—The total number of visitors to the Museum rose from 368,282 in 1894-95 to 385,373 in the year under review. The greatest number of visitors on a single day was 37,011 at the feast of Pongul (January 15th). The following tabular statement shows the rise and fall in the number of visitors during the last ten years:—

1886-87	233,028
1887-88	264,182
1888-89	337,801
1889-90	378,234
1890-91	364,542
1891-92	361,452
1892-93	341,238
1893-94	311,112
1894-95	368,282
1895-96	385,373

The number of gosha females, who visited the Museum on the days set apart for them (the first Saturday of each month) during the year, was 2,444 against 2,254 in the previous year. The following statistics relating to gosha visitors during the last ten years are not without interest:—

1886-87	749
1887-88	1,811
1888-89	1,779
1889-90	2,186
1890-91	1,457
1891-92	1,409
1892-93	1,957
1893-94	1,524
1894-95	2,254
1895-96	2,444

3. SUNDAY OPENING.—A proposal that the Museum and Connemara Public Library should be opened to the public on Sundays was before Government at the end of the year.

4. ESTABLISHMENT.—The services of a clerk were placed at my disposal by the Revenue Secretariat, to assist in the transfer of the books of the Museum Library to the Connemara Public Library. Changes were caused by the retirement of three gallery attendants, and the dismissal of a gallery attendant for being repeatedly found asleep when on duty. A theft of several swámis on a valuable brass candelabra occurred through carelessness on the part of a gallery attendant, who has since left the Museum service.

The establishment required for the Connemara Public Library and Museum new buildings was sanctioned in G.O., No. 916, Educational, dated 4th December 1895.

5. LECTURES.—During the cold season I gave a course of practical demonstrations on anthropology and anthropometric methods in the new theatre, the acoustic properties of which, it may be noted, have proved to be excellent for lecture purposes. The demonstrations were given primarily with the object of supplementing, by practical illustration, the theoretical course prescribed for students reading for the University degree in history (including ethnology in its historic bearing), and were, I am glad to report, largely attended and appreciated.

6. NEW BUILDINGS.—By far the most important event in the history of the Museum during the year was the transfer * to my charge of the new buildings in the Museum grounds, which are now officially entitled the Museum New Buildings and Connemara Public Library.

* G.O., No. 872, Public, dated 19th Oct. 1895.

In the Government Order referred to above, His Excellency the Governor in Council considered that the time had arrived to give effect to the suggestion made by the committee, appointed in 1894, to submit proposals as to the future management of the new buildings, that the Superintendent of the Museum should "be entrusted with the duty and have general charge of the free library, and the public collections to be deposited in the building." A scheme was subsequently submitted by me for the distribution of the accommodation in the new building, which met with the approval of Government.

It was decided by Government that the books of the Madras Literary Society should be placed in such portion of the Connemara Public Library as may be allotted to them by the Superintendent of the Museum, pending their removal to the building which it is proposed to erect for their accommodation. The transfer of the contents of the Museum Library to the Connemara Public Library was completed in February, and I found that the eastern wing, which I had allotted for the Museum Library, was insufficient, and that the allotment of any portion of the western wing to the Literary Society would, under existing conditions, be impracticable. The difficulty was, however, overcome by the sanction of Government for the conversion of the existing taxidermist's room into a record office for the patent office publications and other serials, and the building of a new work-room for the taxidermists in some part of the Museum grounds, where its presence will not interfere with the appearance of the Museum and Library buildings.

The transfer of the art and ethnological collections to the Museum new building has appreciably relieved the congestion from which the old building suffered; and space is now available for the proper exhibition of the economic and timber collections therein.

The space in the Museum new building (the arrangement of which had reached an advanced stage by the end of the year) has been distributed as follows:—

GROUND FLOOR.

Central room.—Anthropological Laboratory for the purposes of research.

Western room.—Collection of articles found in cairns and cromlechs, palæolithic and neolithic implements, pottery, &c.

Eastern room.—Reserved for future additions.

UPPER STOREY.

Central room.—Art manufactures of Southern India, selected types of native gold and silver jewellery, and ethnological series, represented by peasant jewellery, photographs, &c.

Eastern room.—South Indian fabrics (women's cloths, mats, palempores, carpets, &c.).

Western room.—The rich collection of arms from the Tanjore armoury, which are now exhibited as a separate collection.

The stair-cases and corridors have been utilized for the exhibition of pictures and photographs, from the *Journal of Indian Art*, &c., of selected types of South Indian art wares and fabrics, and carved stone slabs from the Amarávati stupa, to serve as patterns for good design.

7. ANTHROPOLOGY.—The anthropological survey, of which the commencement was recorded in my last report, was steadily continued throughout the year. During my residence at head-quarters, anthropometric records of the local Vellálas and Ambattans (barbers) were obtained, and a start was made with what will be a long enquiry into the height and head measurements of students, belonging to different castes and creeds, at the Presidency College.

During a prolonged tour on the Nilgiri Hills, the Badagas of the plateau, and the Irulas and Kurumans (Kurumbas) who inhabit the lower slopes of these hills, the Kongas of Coimbatore who work on tea-estates, and a wandering gang of Lambádis (gipsies) were investigated. For the purpose of comparing the characteristics of the five tribes which inhabit the Nilgiris, no better hunting ground can be selected than the Kotagiri bazaar, where, on market day (Sunday) may be seen gathered together Todas from the distant Kodanád mánd, Kotas from the adjacent Kota village, Badagas from the surrounding villages, and, in fewer numbers, Irulas and Kurambas, who have marched up from their houses on the slopes to purchase the week's supplies. My work on the Nilgiris concluded, a short stay was made at Calicut, where the Tiyans, and Pattar Bráhmans, descended from East Coast Bráhmans who immigrated to Malabar, were examined.

The following is a summary of the work done by me in connection with the survey up to the present time :—

Locality.	Tribe or caste.	Number measured.	
		Male.	Female.
Madras	Ambattan	29	..
	Bráhman	40	..
	Kammálan	40	..
	Palli	40	..
	Pariah	40	..
	Vellála	40	..
Nilgiris	Badaga	40	..
	Irula	25	..
	Kota	25	20
	Kurumba	11	..
	Toda	25	25
	Kongas (from Coimbatore)	20	..
Malabar	Cheruman	25	25
	Muppa	24	..
	Paniyan	25	12
	Pattar Bráhman	25	..
	Tiyan	25	25
	Tiyan Policemen	25	
	Total ..	524	107

The publication of Museum Bulletin No. IV dealing with "the anthropology of the Todas and Kotas of the Nilgiri hills, and of the Bráhmans, Kammálans, Pallis, and Pariahs of Madras City" was delayed by difficulties in connection with the preparation of the illustrative plates. The manuscript of Bulletin No. V, dealing in like manner with the Badagas, Irulas, and Paniyans, was ready for press at the end of the year.

8. ARCHÆOLOGY.—An excellent series of plaster-casts of the Asoka edicts on the rock at Jogodo in the Ganjám district was received from Mr. A. E. Caddy, who was deputed by the Government of Bengal to take the casts. Transcripts of these edicts by Bühler will be found in Burgess' "Buddhist stupas of Amarávati and Jaggayapeta," and an interesting account of Mr. Caddy's visit to Jogodo, and work in

connection with the inscriptions, has been published with G.O., No. 216, Public, dated 11th February 1896 The casts have been arranged in their proper sequence by one of the assistants to the Government Epigraphist.

To the Rev. J. E. Tracy the Museum was indebted for an iron spear-head dug up during the sinking of a well, at a depth of eight feet, at Periyakulam in the Madura district.

A small, but interesting collection of beads, and articles in bone and metal discovered by the light-house keeper at Manapád in the Tinnevelly district, was sent by Mr. A. L. Vibert, and arrangements have been made for further excavations to be made.

A plaster-cast reproduction of a tall column from Humpi was transferred from the School of Arts, and set up in the sculpture gallery.

9. Numismatics.—The Museum was consulted in connection with an extensive forgery of Moghul and other silver coins, the majority of which were forged square rupees of Akbar, struck from the same die, and bearing date 988. From a collection of old copper coins still current in Malabar, I selected, for the Museum collection, the rare coins of Tipú Sultán with tiger and battle-axe, and a Ceylon 2 stuiver, bearing on the obverse the monogram V.O.C. with the latter G. (Galle ?) above and 2.S. below, and on the reverse the date 1783 with Il. (Ilankei = Ceylon) in Tamil characters.

The truth of a recent statement that "the soil is a better and surer recipient of ancient remains than libraries" was borne out by a find, near Yellamanchili in the Vizagapatam district, of a large number of copper coins, identified by Dr. Hultzsch as coins of the Eastern Chalukyan king Vishnuvardhana (A.D. 663–672), with legend Vishama Siddhi as found on the seals of his two copper grants (Indian Antiquary, Vol. VII, 191, and Vol. VIII, 320).

A find, consisting of three pagodas of the Vijayanagar king Bukka, and sixteen unpublished pagodas of the Vijayanagar king Harihara, from the village of Chagallu in the Yadiki sub-division of the Anantapur district, was acquired under the Treasure Trove Act.

A large number of rare Indo-Portuguese coins were purchased as a valuable addition to the existing collection of this interesting series of modern Indian numismatics.

10. Botanical.—The herbarium-keeper, whose health has been failing for a long time, was, I am sorry to record, obliged to apply for a year's sick leave, which was granted. As no other member of my staff possesses the necessary knowledge for assisting me in dealing with botanical and economic questions, his place has not been filled up, pending the re-organization of the Botanical Department consequent on the death of Mr. M. A. Lawson, the Government Botanist, on the eve of his retirement. The Museum herbarium, at that time arranged in alphabetical sequence, was sent on loan to Mr. Lawson at Ootacamund some years ago. Though he wrote but little to advance our knowledge of the botany of Southern India, he has left as a valuable legacy for future botanists a herbarium, to which he materially added, in excellent order, and systematically arranged for the purpose of easy reference.

The preparation of the botanical index collection, referred to in my last report, was continued, and considerable additions were made to it in the form of spirit specimens, dried specimens for exhibition in cases, and herbarium specimens illustrating the stages of germination, morphology of leaves, etc., which appeal to the student with far greater force than diagrams or pictures in text-books.

11. Economics.—Specimens of the rhinoceros beetle (*Oryctes rhinoceros*) and locusts (*Acridium succinctum*) were sent by the Collector of South Canara, who reported that they were causing great damage to the cocoanut trees on the Amindivi group of the Laccadive Islands. The former were believed by the islanders to have increased owing to the revival of plantain cultivation, and said to have been troublesome in former days, but to have disappeared when plantain cultivation was abandoned. *Oryctes rhinoceros*, which has been reported as very injurious to cocoanut trees in Calcutta, Madras and Singapore, is said (Indian Museum Notes, Vol. II) to damage the trees by cutting large holes through the young leaf-shoot. Specimens of leaf-shoots thus cut by this insect were received during the year from the grounds of the Medical College, Madras.

Other insect-pests sent to the Museum for identification were—(*a*) caterpillars, which had eaten the rice crop down to the ground in the Chirakkal taluk of Malabar; (*b*) the rice Hispa (*Hispa œnescens*), which had caused damage, to the value of Rs. 10,000, to the rice crop in the Ponnáni taluk of Malabar; (*c*) larvæ of the red borer (*Zeuzera coffeœ*), which had bored into stems of the tea plant in the Wynaad; (*d*) larvæ, known as urappuchchi, destructive to young transplanted rice at Poonamallee, in the Chingleput district.

At the request of Government I was asked to institute an enquiry, in consultation with the Board of Revenue, as to the practicability of destroying prickly-pear (*Opuntia Dillenii*) by means of cochineal insects or other parasites. The Collectors of all districts in the Presidency were accordingly asked to cause enquiry to be made as to whether any animal or vegetable parasite has been anywhere observed, or can be found, feeding upon prickly-pear in such a manner as to warrant a hope that it might be used as an agency for destroying the plants. Specimens of prickly-pear infested by an animal parasite were received from the Kurnool and Anantapur districts, and sent, for identification, to the Indian Museum, from which a report was received to the effect that "from examination of the scales, the insects appear to be either identical with, or very closely allied to, *Chionaspis prunicola*, var. *theœ*, Maskell. I hope, however, to let you know later on exactly what it is."

At the request of the Reporter on Economic Products to the Government of India, an investigation was made in connection with woods, used in the manufacture of lacquered toys, which may be suitable for the manufacture of bobbins, those at present in use at cotton, jute, and other mills being imported. Specimens of toys in various stages of manufacture, and the woods (*Holarrhena antidysenterica* and *Psidium Guyava*—guava) used in their manufacture, were acquired at Vellore; and the Collector of the Kistna district was asked to obtain a corresponding series of specimens from Kondapille.

A fine block of heartwood of the red sanders tree (*Pterocarpus santalinus*), with a diameter of 7·2 inches, was presented by Mr. E. P. Popert, Conservator of Forests.

12. *Mineral Gallery.*—Specimens of corundum were received from a hilly village, named Jarmala, in the Kúdligi taluk of the Bellary district, with a note to the effect that, "whenever the soil is washed away by heavy rains, the stones are thrown up, and picked up by villagers. They are used by barbers for whetting their razors, and it is stated that they are reduced to powder, mixed with lac, fused together, and bangles manufactured from them." Arrangements were in progress, at the end of the year, for a collection of corundum, from the Salem and Coimbatore districts and Hunsoor in the Mysore Province, to be sent to the Imperial Institute for examination and report as to their economic possibilities.

I paid a flying visit to the Mysore gold fields, as the result of which the Mysore Gold Mining Company sent to the Museum a collection comprising blue quartz in block, quartz containing visible gold, quartz with pyrites and galena, tailings, dead rock, jasper, and agate.

A panoramic photograph of the gold fields showing their general appearance, and a series of photographs of the sub-fossil coral reef at Pámban on the Madura Coast were exhibited.

Large specimens of kyanite (or cyanite) were sent by Mr. Brougham of the Forest Department from the Podalakur reserved forest in the Nellore district. The mineral was reported to be used for medicinal purposes by natives. When blue and transparent in sufficiently large pieces, this mineral is used as a gem somewhat resembling sapphire.

A fine specimen of mica (muscovite) from the Nellore mines, with interlaminar inclusions, was exhibited.

To Messrs. Parry and Company the museum was indebted for large lumps, ordinary lumps, chips, and dust of graphite (plumbago) from Travancore. Among other additions may be noted specimens of carbonised wood from a bore-hole of the Gódávari Coal Mining Company (Messrs. Binny and Company), a crystal of beryl

(aquamarine) from the Salem district (Mr. C. Middleton); and a specimen of fuchsite (chromium mica) from Talaghat, 12 miles south-south-west of Bangalore (Mr. Bruce Foote).

The increasing number of those engaged in commercial enterprise, who consult the Museum in connection with minerals of economic importance, is noticeable as a sign of the attention which is being paid at the present day to the development of the mineral resources of the Presidency.

13. *Mammal and Bird Gallery.*—To Mr. W. M. Daly, the Museum was indebted for specimens (two male and one female) of the Malabar spiny mouse (*Platacanthomys lasiurus*) captured at Mudgiri (3,000 feet) in the Kadúr district of the Mysore Province. The following measurements were recorded by Mr. Daly :—

	Male.	Female.
Head and body	4·10 inches	5 inches.
Tail without hair	3·6 „	3·9 „
Hind-foot without claw	1 inch	1 inch.

A series of skulls was prepared and exhibited, illustrating variation in the horns of the domestic buffalo and cattle, sheep, and goats.

A quaint request was received for some powdered elephant's tooth, as being a specific cure, when employed as a local application, for mumps.

The nest of the Brahmini kite (*Haliastur indus*) in the fork of a banyan tree, and the nest of the crimson-breasted Carbet, or copper smith (*Xantholæma hæmatocephala*) bored in a casuarina pole, were added to the collection.

Among the additions to the collection of birds, the following are worthy of special notice :—

(*a*) Violet cuckoo (*Chrysococcyx xanthorhynchus*), recorded in the Fauna of British India from "Dibrugarh in Assam, Cachar and Tipparah, throughout Burma and the Malay Peninsula, Andaman and Nicobar Islands," was caught by a bird-catcher near Perambúr within the city of Madras early in March.

(*b*) Banded rail (*Porzana ceylonica*) was found, in the middle of May, in the mineral gallery of the museum.

(*c*) Western blue rock thrush (*Petrophila cyanus*) was shot in the Museum grounds in February.

14. *Reptiles.*—The following were added to the existing collection in the annexe between the main hall and mammal gallery :—

Stuffed specimens of *Crocodilus Palustris* (young) from the Gódávari and Tangabudra rivers.

Skeletons of rock-snake (*Python molurus*) and *Chamœleon calcaratus.*

Eggs of rock-snake.

Skulls of the cobra, Russell's viper, and rock-snake to show the characters of their dentition.

15. *Marine Gallery.*—A conspicuous addition was made to the contents of this gallery in the shape of a series of well-prepared skeletons representative of various families of sharks, rays, and bony fishes. The manner in which the Head Taxidermist, during my absence on tour, without any suggestion from myself, initiated this series, gave me great satisfaction. The series includes a very fine skeleton of a sword-fish (*Histiophorus gladius*) caught off Madras.

A specimen of the tiger-shark (*Stegostoma tigrinum*), 7 feet and 6 inches in length, also caught off Madras, was exhibited.

Among other additions may be noted a large fresh water crustacean (*Palæmon carcinus*) from Madras, a large shell of *Sepia* sp. found on the Madras beach, and a fossil coral (Fungia sp.) found during the excavation of foundations in Madras.

Specimens, full-grown and immature, of the pearl-oyster (*Ariecula fucata*) which is "fished" for off Tuticorin, found on the coast at Collachel, were sent for identification by Mr. J. Thomson, Resident of Travancore. In 1886, I saw a number of shells of this pearl-producing mollusc on the shore at Narrakal, near Cochin, which, I thought,

must have been rolled in by the sea from a bank at no great distance from the shore. I am informed that a contract was given in 1884 to a native of Tuticorin, who collected about 4,900 shells off Collachel.

16. *Live Animals.*—The animals (mostly snakes) exhibited in the new entrance hall continued to be a source of great attraction. The following notes relating to animals kept in confinement may not be without interest:—

Python (*Python molurus*) ate 82 jerboa rats (*Gerbillus indicus*) in the year. Will not eat house rats. Shed its skin on the 26th April, 18th August, 19th December.

Rat-snake (*Zamenis mucosus*) ate 142 green frogs in the year. Shed its skin 13th May, 14th June, 15th July, 18th August, 13th September, 12th October, 11th November, 9th December, 17th January, 27th February, 27th March, *i.e.*, in every month.

Russell's viper (*Vipera russellii*)—One specimen ate only two rats from 1st April till its death on 13th October. Its successor ate 12 rats from 14th November to 31st March.

Whip snake (*Dryophis mycterizans*) died as the result of a wound inflicted in the back by a mouse. Ate 16 mice from 22nd April to 23rd December. Shed its skin on 21st June and 28th September.

Tree snake (*Dendrophis pictus*) ate 79 toads and 1 lizard from 12th August to 31st March. Shed its skin 24th October.

Sand snake (*Eryx johnii*) ate 16 rats and 3 mice in the year. Shed its skin 1st April, 3rd May, 22nd October, 21st February.

Sand snake (*Gongylophis conicus*) ate 57 mice in the year. Shed its skin 18th April, 18th May, 6th August, 9th October.

Tropidonotus stolatus ate 131 toads in the year. Shed its skin 29th June, 21st October, 22nd December, 25th January.

Lycodon aulicus lived for only two months, refusing food entirely.

Krait (*Bungarus cæruleus*) lived only three months, during which it ate 16 toads and a lizard.

Chamæleon (*Chamæleon calcaratus*) eats two or three cockroaches daily.

Slender Loris (*Loris gracilis*) eats plantains and several cockroaches daily.

17. *Library.*—The number of visitors to the library was 5,815 against 6,989 in 1894–95. The small number is accounted for by the fact that the library was closed to the public during the transfer of the books to the Connemara Public Library, from 15th November, 1895, till the end of the financial year.

The published catalogue of the library, which is arranged alphabetically according to author's names, is being supplemented, for the convenience of readers, by a series of subject indexes, to be printed in separate fasciculi. The preparation of the manuscript slips of these indexes occupied a great part of my time during the last half of the year. The subjects which were ready for press at the end of the year were—

Anatomy; Biology.
Natural History (animal); Zoology.
Anthropology; Folklore.
Archæology.
Architecture.
Arts and Industries.
Botany; Horticulture.
Dictionaries; Lexicons; Encyclopædias; Gazetteers; Hand-books.
Economic Products and Economic Entomology.
Education; Ethics; Logic; Metaphysics; Philosophy; Political Economy.
Forestry; Timbers.
Geology; Palæontology.
History.
Mineralogy; Metallurgy.
Numismatics; Medals; Heraldry.
Natural Philosophy.
Sport and Games.
Travels and Foreign Countries.
Voyages.

The appointment of a Sub-Librarian and Personal Assistant to the Superintendent received the sanction of Government,* with the provision that, as he will be of little use until he has acquired a thorough knowledge of his work and the books in his charge, he should be required to bind himself, under a penalty of Rs. 5,000, to serve in the post for at least ten years, unless the Government sees reason to permit him to leave it.

* G.O., No. 916, Educational, dated 4th December 1895.

The following is a summary of the additions to the library :—

Presented by Government	420
Do. by Private Individuals	154
Acquired by Purchase	85
British Museum Publications	5
Patent Office Papers	43
Periodicals	53
Record Publications of the Master of the Rolls	13
Parliamentary Papers	40

18. *Valuable Stock.*—The necessary inventory of stock was maintained and duly checked. The collections were all in good order at the end of the year.

(Signed) EDGAR THURSTON,
Superintendent, Government Museum.

APPENDIX A.

VISITORS to the Government Museum from 1st April 1895 to 31st March 1896.

1895-96.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagaree.	Goozerathee.	Canarese.	Chinese.	Chingalese.	Malayalam.	Bengalee.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	567	898	427	2,202	70	..	59	43	..	..	89	21
May	528	1,031	367	2,948	23	2	43	78	..	..	88	11
June	795	1,174	638	2,944	25	4	68	167	..	4	74	72
July	673	1,123	404	3,049	25	..	63	76	..	2	72	19
August	603	1,056	474	3,153	9	..	33	97	..	3	47	15
September	631	1,243	364	2,707	22	1	30	93	..	4	48	20
October	535	1,215	449	2,842	20	..	26	101	..	..	29	26
November	406	1,296	349	2,858	13	4	30	131	..	..	98	2
December	718	1,869	467	4,367	18	..	105	136	2	1	108	15
January	816	1,026	489	5,379	13	2	30	73	..	..	44	2
February	574	814	410	2,433	11	..	35	24	..	..	48	2
March	456	664	388	2,333	3	..	32	19	2	2	37	52
Total ..	7,302	13,409	5,726	37,215	252	13	554	1,038	4	16	782	257

1895-96.	Total of signatures.	Unable to sign but tally kept.	Total of visitors.	Number of		Total of visitors.
				Men and boys.	Women and girls.	
	14	15	16	17	18	19
April	4,376	21,837	26,213	14,438	11,775	26,213
May	5,119	21,206	26,325	15,026	11,299	26,325
June	5,965	20,763	26,728	16,243	10,485	26,728
July	5,506	22,075	27,581	15,957	11,624	27,581
August	5,490	22,354	27,844	16,247	11,597	27,844
September	5,163	21,474	26,637	15,673	10,964	26,637
October	5,243	18,664	23,907	15,365	8,542	23,907
November	5,187	19,370	24,557	14,388	10,169	24,557
December	7,806	44,346	52,152	29,646	22,506	52,152
January	7,874	71,278	79,152	40,758	38,394	79,152
February	4,351	17,399	21,750	12,725	9,025	21,750
March	4,488	18,039	22,527	14,342	8,185	22,527
Total ..	66,568	318,805	385,373	220,808	164,565	385,373

APPENDIX B.

Donations, 1895-96.

Abbott, Mr. C. E.—

Insect (*Zeuzera coffeæ*) and tea stem bored by the larva.

Achard, Mr. L. N.—

Flying lizard (*Draco dussumieri*).
A small collection of beetles.

Snakes—

Echis carinata.
Tropidonotus beddomii.
Trimeresurus strigatus.

Arden, Revd. A. H.—

Snake (*Hydrophobus nympha*).

Asiatic Society of Bengal—

Silver coins of British mintage found in the Birbhum district.
Impure gold coins belonging to "Class B of the Great Kusans" from the Rawalpindi district.
Silver coins—Gadia from the Nagpur district.
Silver punch-marked coins from the Shahpur district.
Coins of Muhammad Karlak from the Gujramwála district.
Rupees of Muhammad Sháh of Afghanistan from the Shahpur district.
Gold and silver later Indo-Scythian coins, and later Great Kusans Class B, from the Ghang district.
Copper coins of the Sultans of Málwa from the Mandla district.
Rupees of Alamgir II. from the Burdwan district.
Indo-Scythian coins from the Puri district.

Bellary district, Collector.—

Corundum from Jarmala, Kúdligi taluk, Bellary district.

Binny & Co., Messrs.—

Carbonised wood from bore-hole, Godávari Coal Mining Company.

Brougham, Mr. J. H. B.—

Mineral (kyanite), Nellore district.

Cardozo, Mr. H. O'C.—

Crocodilus palustris from the Gódávari river.

Chambers, Hon'ble Mr. G. L.—

Graphite in quartz.

Cottingham, Mr. H. G.—

Stripe-necked mungoose (*Herpestes vitticollis*).
Great horn-bill (*Homraius bicornis*).
Jungle grey horn-bill (*Tockus gingalensis*).
Brown headed king-fisher (*Halcyon leucocephalus*).
Common Indian king-fisher (*Alcedo bengalensis*).

Snakes—

Tropidonotus plumbicolor.
Hydrophobus nympha.
Dipsas sp.

Daly, Mr. W. M.—

Malabar spiny mouse (*Platacanthomys lasiurus*).

Dunhill, Mrs.—

Snake (*Chersydrus granulatus*).

Eleazer Pillay, Mr. J. S.—

Scorpion with young.

Foote, Mr. R. B.—

Fuchsite (chromium mica) from the Mysore Province.

Henderson, Mr. J. R.—

Russell's viper, young (*Vipera russellii*).

Jeeva, Mr. P. G.—

Silver and copper coins, and quartz crystals.

Middleton, Mr. C.—

Beryl and iron garnet from the Salem district.

Municipal Commission, Madras—
Eggs of Python (*Python molurus*).
Black Leopards (*Felis pardus*).
Tiger cubs (*Felis tigris*).
Black monkey.
Abyssinian baboon.
Opossum.

Mysore Gold Mining Company.—
Quartz showing visible gold.
White quartz.
Dark-blue quartz.
Quartz adhering to barren matrix.
Dead rock.
Blue quartz.
Quartz and pyrites.
Quartz and galena.
Quartz and schist.
Jasper in lode-matter.
Agate.
Tailings from stamps.
Tailings from pan-mill.

Parry & Co , Messrs.—
Graphite (plumbago) from Travancore.

Phipps, Mr. C. E.—
Tasar Silk Moth (*Antheræa mylitta*) and Cocoon.

Popert, Mr. E. P.—
Red Sander's wood (*Pterocarpus santalinus*).

Powell, Mr. E. B.—
Moths (*Actias selene*).

Raghavacharlu Garu, Mr. V.—
Cockatoo.

Royal Asiatic Society (Bombay Branch)—
Silver coins of Aurangazib and Shah Jahán found in the Nasik district.

Sandford, Mr. N. C.—
Inscribed stone found in a Pándyan grave near Jalarpet.

Simpson, Mr. C. S.—
Night heron (*Nycticorax griseus.*)

Superintendent, Royal Botanical Gardens, Calcutta.—
Herbarium specimens.

Taylor, Mr. R. S. M.—
Copper coins (dubs).

Tracy, Revd. J. E.—
Iron spear-head from Periakulam.

Vibert, Mr. L.—
Bone, lead, and metal articles dug up at Manapád, Tinnevelly district.

Walker, Mr. J. L.—
Russell's viper (*Vipera russellü.*)

Ward, Mrs.—
Caterpillar.

Wedderburn, Mr. H. G.—
Nest of Tailor-bird (*Orthotomus Sutorius.*)

Wroughton, Mr. R. N.—
Collection of Indian ants.

APPENDIX C.

Standard Works.

Donations.

Alphand, A., and le Baron Ernouf-Traité pratique et didactique de l'Art des Jardins
Asylum Press Almanack—1800, 1801, 1808, 1812, 1815–17, 1820, 1822–38, 1841, 1843–46, 1849–50, 1852, 1854, 1863, 1871–1880.
Baynes, C. R.—Criminal Law of the Madras Presidency, 1858.

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Challenger, H. M. S.—Summary of Results, 1895.
Chatterjee, M. N.—Crimadbhagavatam : Translation. Book I, 1895.
Clarke, R. T.—Improvement of Cotton by Purity of Seed, 1866.
Danvers, F. C.—The Portuguese in India : History of the Rise and Decline of their Eastern Empire, 1894.
Dutt, M. N.—Ramayana : Translation, Vols. 2 and 3, 1892–93.
Gribble, J. D. B.—History of the Deccan, Vol. 1, 1895.
Hampson, G. F.—Moths [Fauna of British India], Vol. III, 1895.
Hooper, D.—Camphor Leaf Oil, 1896.
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Mitra, Sarat Chandra.—Notes on Behari Customs and Practices.
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Moore, F.—Lepidoptera Indica, Vol. 2, Parts 21–24, 1895–96.
Phra Tripitaka.—In Pali-Siamese Characters, 39 Vols.
Platts, J. T.—Grammar of the Persian Language, Part I, 1894.
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Ramsay, H. M.—Anthropometry in Bengal, 1895.
Ray, Pratapa Chandra.—Mahabharata : Translation, Parts 94–97, 1894.
Rodgers, C. J.—Catalogue of Coins of the Indian Museum, Part 2, 1894.
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Smither, J. G.—Architectural Remains, Anuradhapura, Ceylon, 1894.
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APPENDIX C.

Standard Works.

(By Purchase).

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Armstrong, H. E.—Introduction to the Study of Organic Chemistry, 1886.
Baker, Sir S. W.—With Rifle and Hound in Ceylon, 1892.
Ball, Sir R. S.—Elements of Astronomy, 1891.
Bell, H —Railway Policy in India, 1894.
Bennett, A. W.—Text-book of structural and physiological Botany, 1882.
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Blanford, W. T.—Birds. [Fauna of British India.] Vol. 3, 1895.
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Gray, H —Anatomy : descriptive and surgical, 1893.
Gribble, J. D. B —Outlines of Medical Jurisprudence for India, 1892.
Griffin, W. N.—Elements of Algebra and Trigonometry, 1881.
Hartmann, R.—Anthropoid Apes, 1885.
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Heilprin, A.—Geographical and Geological Distribution of Animals, 1887.
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Milne, J.—Earthquakes and other Earth Movements, 1886.
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APPENDIX D.

CLASSIFIED List of Expenditure of the Government Museum during the year 1895-96.

	Actuals, 1895-96.	Revised estimate, 1895-96.
Salaries.	RS.	RS.
Superintendent	9,600	9,600
Exchange compensation allowance	1,721	1,839
Total ..	11,321	11,439
Permanent Establishment.		
First Assistant, second Assistant, first, second and third taxidermists, herbarium-keeper, artist, writer, assistant writer, librarian, assistant librarian, thirteen hamals, Superintendent's peon, chickledar, and peon—27 persons	6,773	6,892
Temporary Establishment.		
Clerk, collecting taxidermist, two gallery attendants, three gardeners, two sweepers, five watchmen, water pandal Brahmin, punkah-puller, and chockra—17 persons	1,149	951
Total, Establishment ..	7,922	7,843
Allowance.		
Travelling allowance	418	1,000

	Actuals, 1895–96.	Revised estimate, 1895–96.
Supplies and Services.	RS.	RS.
Cost of specimens purchased on tour	694	1,000
Cost of specimens, objects of interest and coins purchased at head-quarters	1,116	700
Cost of books, and publications	1,808	1,800
Preparation of fittings, furniture, &c., for the collections	3,056	2,950
Cost of European stores	30	50
Total, Supplies and Services ..	6,704	6,500
Contingencies.		
Purchase and repair of furniture	199	200
Binding books and lithographing plates	800	800
Rents, rates and taxes	1,098	1,098
Freight, boat-hire and landing charges, railway fare, cartage charges, wages and coolies, expenses for lighting, expenses for keeping clean, ammunition, expenses for reading coins, water shed, garden, measurement and jut hire-charges, charges for feeding live animals, subscriptions to local newspapers, and office expenses and miscellaneous. Kerosine-oil.	881	720
Service postage and telegram charges	196	200
Total, Contingencies ..	3,174	3,018
Grand Total ..	29,539	29,800

APPENDIX E.

The Madras Government Museum as an aid to General and Technical Education.

A lecture delivered at Pachaiyappa's College, 31st October 1895.

Looking at my annual administration report for 1894–95, in which I have to give an account of my stewardship during the year, I see that the Museum was visited by 368,282 visitors—a number which may be accepted as a proof that the institution is an eminently popular one. Analysing the figures, I find that, of the 368,282, 300,163 were unable to sign their names, *i.e.*, they belonged to the uneducated classes, who, according to the census report, 1891, constitute 92·13 per cent. of the entire population of the Madras Presidency. Of those who were sufficiently educated to sign their names, I find that 38,865 signed in Tamil, 13,803 in Telugu, 6,634 in English, 5,812 in Hindustani, and the remainder in Canarese, Malayalam, Mahratti, Nágari, Guzeráti, Bengali, Cinghalese and Chinese; so that my visitor's book is, in its way, a polyglot curiosity.

An interesting fact, in connection with the subject of visitors, is that the Museum is, on the first Saturday of each month, closed to the general public, and set apart, with female attendants in charge, specially for Hindu and Muhammadan gosha females, who came, during the year 1894–95, to the number of 2,254, as against 1,524 in the preceding year, and only 749 nine years ago. The Museum is therefore, I am glad to record, taking its share in the promotion of female education and enlightenment.

For the great mass of visitors, who come under the heading of sight-seers, and regard the Museum as a tamásha house, *jadu gahr* (wonder-house), or 'stuffing college,' it matters but little what exhibits are displayed, or how they are displayed, provided only that they are attractive. To the wholly uneducated classes, the main delight of a visit to the Museum is the recognition of familiar objects, which they shriek out by name, *e.g.*, káká (the crow), pachi pámbu (the green tree-snake), áni (the elephant), periya min (big fish—the whale!), etc. The simple requirements of the uneducated are, therefore, easily satisfied without the expenditure of much brain-energy, but it is my chief duty to provide material adapted for the entertainment of those who come to the Museum, not merely with a view to getting through a spare hour of the day, but with a definite idea of receiving instruction, and acquiring solid information.

You, as students, with the examination demon constantly before you, are compelled to gather in knowledge mainly by appeals to the auditory centre (the centre of hearing) through the medium of lectures. But, in many cases, the appeal to your sense of hearing is, or should be, supplemented by a further appeal to the visual centre (the centre of sight) by means of diagrams, the black board, experiments, and specimens. Moreover, in elementary education, what are known as object lessons, the principle of which depends on the proverb that 'to see is to know,' are resorted to with a view to investing the dry bones of lessons with some element of interest. The system of object lessons has, to my knowledge, made considerable strides in the City of Madras within the last few years, and constant application is now made to the Museum for the loan to schools of such varied objects as coral, bird's eggs, fishes, coal, iron, tin, birds, snakes, crocodiles, turtles, skulls, shells, etc. On one occasion a full-grown stuffed bear was lent out to a pupil teacher, to enable her to give an original object lesson at an examination, and application (which it was impossible to comply with) has even been made for the loan of an articulated skeleton of a large waler horse.

On several occasions in recent years, a prize has been offered to students for the best essay based on a visit to the Museum, and I have been asked to adjudicate on the essays. One competitor, I remember, commenced as follows:—"I had often heard that Mr. Thurston is a wonderful man, and, having seen him, feel that he was, as it were, set apart by the Creator for the special function, which he so ably fulfils." I am sorry to say that this touching appeal to my vanity did not secure the prize. Another competitor said that I was giving them an interesting lecture in the gallery, when I looked at my watch and said "Hulloa! It is time for breakfast," and they saw me no more, which was unfortunate. He, too, was not the prize-winner.

I have a very vivid recollection of paying a visit, some years ago, to a school in London, whereat a class, composed of tired and underfed children of the labouring classes, was struggling to learn the rudiments of physiology, and repeating, over and over again, in a musical sing-song, "scapula, clavicle, humerus, ulna, radius, carpus, metacarpus, phalanges," *i.e.*, the name of the bones of the upper extremity, the position of which had never been shown to them either in a diagram, on the black board, or on the skeleton. Parrot knowledge, acquired in this way, is, in my eyes, an abomination, and it is a pitfall into which many of you students in India tumble, like elephants at a keddah, with the inevitable result that, when you come up for examination, and find yourselves face to face with questions which take you off the beaten path of the lecture or the text book, you are, to use an unacademic phrase, plucked; and to this cause is due the large number of "failed F.A.'s," with whom every head of an office, Government or Commercial, is so familiar.

Gentlemen, I speak with many years experience as a University examiner, and know full well the common, and exasperating type of answer, in which the candidate, who sails merrily along, so long as he can quote line after line, or, page after page, of Huxley's 'Elementary Lessons in Physiology,' comes to utter grief when he has to think for himself, and answer questions, which are not directly answered for him in the book. A candidate will, for example, quoting from Huxley, tell the examiner that "it takes about four pounds of fatless meat to yield 4,000 grains of carbon, whereas one pound will furnish 300 grains of nitrogen," but will be wholly unable to mention ten food-stuffs, six of which contain nitrogen, and four do not—a simple straight forward question, for the answers to which I remember recording a melancholy number of duck's eggs, which, by the way, are examples of food-stuffs containing nitrogen.

But it is essentially in practical examinations that I notice a marked absence of development of the power of observation, which may be illustrated by two examples taken from a large stock at my disposal. I have here two specimens, which were given for identification at the practical portion of the last B.A. Degree examination in zoology. The one is the skin of a skate or ray (one of the elasmobranch fishes) beset with bony tubercles; the other is the glassy anchoring spicules of a marine sponge (Hyalonema). The former was, in most cases, identified as the skin of an elephant, hippopotamus, or rhinoceros; the latter as a piece of the tail of a horse. Some candidates even went so far as to say that the tail was in a fossil state, and that the horse was an Arab steed.

Our Indian museums would be fulfilling a very useful function if, in the capital city of each province, collections were brought together and properly exhibited, illustrating and forming a classified index to the natural history, ethnology, arts, archæology, economic resources, &c., of the province concerned.

I take it that a Museum, such as that of Madras, which, as compared with some of the great European and American museums, is a small and modest institution, has four primary functions to fulfil:—

1. The exhibition of a systematically arranged series, constituting an index, or illustrated guide, to the natural history (including mineralogy), ethnology, arts, industries, economic resources, etc., of Southern India;
2. To assist the cultivation of the power of observation;
3. To be an agency for the enlightenment of the people;
4. To indirectly assist the cause of education, by the exhibition of collections teaching the most important points in the structure of the principal types of animal and plant life, etc., as an aid to pupils at colleges or schools, which are inadequately supplied with teaching museums, on the contents of which the lecturer can indent for illustrations to his lectures.

Let me illustrate the last point by reference to two examples taken from the animal kingdom.

The marine gallery of the Museum contains, among other things, a large series of stuffed specimens and skeletons of the fishes which inhabit those parts of the Indian Ocean and Bay of Bengal, which bound the southern portion of the Indian Peninsula. But this series, which constitutes a guide to the fish fauna of Southern India, is supplemented by a series, for the use of students, or those interested in natural history, illustrating, by means of carefully selected specimens, with descriptive labels, to take the place of the text-book, the principal types of Indian fishes, their external anatomy, dentition, adaptation to different modes of life, weapons of offence and defence, etc. When lecturing on comparative anatomy at the Medical College, I have, in the course of a lecture on the osteology of fishes, to make use of such dreadful names as neural and hæmal spines, inter-neural, inter-hæmal, and many others. No mere mouth utterance or diagram can effectually impress the names and position of the various bones on the students' memory, and I have accordingly added to my index collection this skeleton of a big sea-perch, with the various bones labelled. A few minutes spent at the Museum in the company of this skeleton will teach far more as to the names and relative positions of the bones than any amount of preaching on my part.

Here, again, are a stuffed specimen, and a skeleton of a fox-bat or flying fox, such as may often be seen in Madras, roosting on trees, with head dependent, in large colonies, which would form very suitable material for an object-lesson in natural history. The stuffed specimen shows very clearly the broad folds of skin, on each side of the body, which, when expanded by the spreading of the limbs, act as a parachute to keep the animal for a time in the air, and permit it to fly, bird-like, from place to place. The modification of the fore-limbs and breast-bone, connected with this power of aerial fight, is clearly brought out by the labelled skeleton. The sternum, or breast-bone, projects, so as to answer the same purpose as the carina, or keel, of the breast-bone of birds, *i.e.*, to give attachment to the breast muscles, which set the wings in motion. The bones of the fore-arm are very long, and the metacarpal bones are very long and slender, forming the greater part of the hand. The thumb possesses a claw, which is of use to the animal in attaching itself to various surfaces, *e.g.*, when it is roosting on the bough of a tree, or in walking on the ground. The bones of the arm and the fingers, with their muscles, are enclosed between the two layers of skin, of which the wing-membranes are composed, and which they extend and support. The expansion of the wing is effected by the spreading out of the fingers, which radiate from the wrist, like the sticks of a fan. When the animal is not flying, but at rest, the long fingers are drawn together, and the membrane forms folds at the sides of the body. To any one possessing any knowledge of comparative anatomy, it is evident that, though differing in its external form, the fore-limb of the flying-fox possesses a marked homology or similarity in its essential internal structure (skeleton) with that of other animals possessing such different forms as the seal and tortoise, the mole, the higher apes, and man. The skeleton before you might, in fact, form the text of a lecture on the evolution of man, and common ancestry.

I have selected the specimens of the flying fox out of an extensive repertoire, to illustrate the principle that the contents of a single case may not merely constitute an exhibit, to be casually looked at and hurriedly passed by, but may serve as the subject of an object lesson, explanatory of various points in natural history in its relation to mammals, birds, fishes, reptiles, sponges, corals, crabs, starfishes, shells, etc.

With exhibition my duties as a semi-educational official cease, so far as the general public is concerned. But it is for those engaged in teaching the young idea, more especially in elementary schools, to promote one of the principal ends of all museums, namely, the education of the people, and to make use of the extensive teaching material placed at their disposal in the Museum galleries, by there supplementing the routine, and oft time soporific tuition of the school room, by taking their pupils systematically round the museum, and explaining to them, in such simple and entertaining language as they can call into play, the lessons which can there be learned. The modifications of skin to form the horns of sheep and cattle, the antlers of deer, the spines of the porcupine, nails, claws, whiskers, hoofs, bills, and webs; the skeleton of the elephant; the whale-bone whale and toothed whale; the adaptation of the teeth of mammals to different forms of diet, piscivorous (fish-eating), carnivorous (flesh-eating), insectivorous, herbivorous (grass-eating) and omnivorous (adapted for all kinds of food—man, monkeys, and pigs); the life-history of silk worms; corals and coral reefs; suggest themselves to me as a few examples of subjects, worthy and capable of being worked up into interesting discourses.

Not long ago I was vigorously attacked by an unscientific friend for not having exhibited, in the marine gallery, specimens of the seir and pomfret, the two fishes which are most esteemed by the fish-loving European community of Madras. As a matter of fact they were there, but under their scientific names, *Cybium* and *Stromateus*, which my friend did not recognise. I at once set to work, and arranged two cases, in which all the fishes eaten by Europeans in Madras are exhibited under their popular, as well as their scientific names. The criticism of my friend was, in this case, just, but I sometimes wish that my critics would take me into their confidence before they drop on me. Not long ago, a correspondent of a newspaper was down on me for exhibiting a stuffed specimen of a dolphin in the mammal gallery, presumably because there was no space for it in the fish gallery. Had this gentleman come to me, I could have prevented him from making a bad zoological mistake at my expense, and explained to him that the sea, like the land, contains many mammals, which include the dolphins, the whales, and the dugongs. Some years ago, when I was away pearl-fishing at Tuticorin, I received the following stirring telegram

from Madras :—" Whale on shore: stupendous spectacle, what is to be done "? To which, I replied "Stuff." On the following day, I received another telegram, announcing that "Whale is a shark," and it turned out to be the rare elasmobranch *Rhinodon typicus*.

Quite recently a hint was thrown out that, among other appliances, the Museum should, with a view to attracting attention to them, exhibit sewing-machines and iron ploughs. Now, if one modern appliance has been more widely advertised, and come into more general use than another among the natives of India, it is the sewing-machine, which any one, who is in the habit of wandering about the country, can see in daily use by native tailors in remote up-country bazárs; and the suggestion as to iron ploughs recalled to my mind the story of the ryat, who was shown a new form of plough, and asked his opinion about it. He said (so the story goes) that it seemed to be a good plough, but was quite useless for this country, because there was no room for the driver to twist the tails of the bullocks.

But, though not in sympathy with the exhibition of sewing-machines and iron ploughs, I fully endorse a recent suggestion that "what is wanted is an institution, to afford, on a small scale, information which will help to develop the trades and industries of the Presidency, similar in objects to that of the Imperial Institute in London, which was founded to foster and develop the commercial and industrial relations of the whole British Empire." I do assure you, Gentlemen, that I have not been blind for ten years to the importance of developing the Museum on these lines, and that I have, clearly mapped out in my head, a scheme which will be put into action, now that increased space is placed at my disposal, for the development of a section, already existing in a rudimentary state, devoted to the illustration of the economic resources and industries of Southern India, and the establishment of what I would call an economic and industrial museum.

The boundary line, which separates art from ethnology, and art from industries, is extremely ill-defined. Such objects as, for example, musical instruments, arms and armour, come, more or less, as much within the domain of art as of ethnology. The tom-tom of this country, the primitive bows and arrows of so-called 'aboriginal' tribes, and the quaint representations of animals in brass made by the hill tribes of Ganjám, belong to the domain of ethnology rather than art. A highly ornamented vina, the richly chased arms from the armoury of the former Rájas of Tanjore, and Tanjore metal swámi ware, belong, on the other hand, to the domain of art rather than of ethnology. The hand-painted palempores of Kálahasti, illustrating scenes from the Rámayana and Mahabarata, possess high artistic merit, whereas imported English printed cloths with debased Indian design are but gross caricatures of their Indian prototypes. Some natives, however, regard the trade mark, which is stamped on imported piece goods, as very high art, and exhibit it conspicuously on the tail or front of the shirt.

The stone carvings on the marvellous sculptures from the Amarâvatî stûpa, the carved doorway from the ruined city of Vijayanagar, the collection of armour, and the contents of the art gallery (more especially the collection of native jewelry) of the Museum afford ample material for artistic design for workers in wood and metal, which is, it is sad to relate, but little availed of by those who should be interested in keeping design up to a high standard. The finest samples of native jewelry, from the collections of the Museum and School of Arts, have been admirably reproduced in the Journal of Indian Art, and there lie buried, while design in native jewelry is steadily degenerating by reason of the replacement of jewelry of indigenous manufacture by imported jewelry of European manufacture. Easy communication between India and far distant countries, and the consequent inrush of globe-trotters gifted, for the most part, with little artistic taste, and ready to greedily swallow the rubbish which is placed before them by itinerant hawkers, are responsible for much that is bad; and it is one of the duties of Museums in India to take a leading part in what is known as technical education, by the exhibition to the general public and those concerned in developing the arts and industries of the country, of the best types illustrative of the local arts and industrial wares, with a view to preserving the indigenous handicrafts and art work from irremediable degeneration.

It is, I believe, a fact that the pioneer of the gold-mining industry in Mysore first had his attention attracted by noticing, in the Bangalore Museum, a modest mineral specimen labelled "alluvial," with a note of the locality from which it was taken; and a recent visitor to the Madras museum, well versed in economic mineralogy, made the remark that the mineral gallery contains hints for the making of several fortunes.

I do not, for a moment, claim, on behalf of an economic and industrial museum, that it can do much for industries which are already firmly established, or that I could, through its medium, teach our leading merchants or planters much which would bring more grist to the mill in connection with large industries such as cotton, indigo, tobacco, coffee, tea, etc. Such a Museum should, however, with a view to directing general attention to them, possess complete collections illustrating each product in the raw and manufactured state, and indicate the extent to which, and conditions under which, they are produced, and their commercial value. But, in addition to the major products, which are already firmly established in the market, there are many minor products which are capable of development, and becoming a source of more or less profit; and to these it is the duty of the Museum to attract attention.

Let me illustrate this point by reference to this specimen of fibre and bamboo scraper. In 1893, I was strolling one evening, with my eyes open, through the Coimbatore bazár, when my attention was attracted by samples of a beautiful white fibre, hanging up for sale in many of the shops. Enquiry elicited the information that the fibre was obtained from the leaves of the American Aloe (Agave Americana) which is grown along the Madras Railway line as a protective fence against stray cattle and other beasts, and flourishes exceedingly in the dry climate of Coimbatore, with its small yearly rainfall of twenty-one inches. The extraction of some valuable fibres is a source of great difficulty, and the Government of India some years ago offered a reward of 50,000 rupees to the inventor of the best machine or process for the extraction of rhea fibre. The Agave fibre is, however, easily extracted by splitting the leaves into four or five pieces, which are beaten with a wooden mallet, and the pulp removed by means of a bamboo scraper. The expense in connection with the extraction of the fibre is, therefore, reduced to a minimum. Samples of the fibre were sent to England for examination by experts, and the highly satisfactory report received that "it is of good roping quality. Value £20-£22 per ton. Fibre equal in quality to the sample would sell readily in any quantity at slightly under the price of fair, current manilla hemp (£23-£24,) and its growth should be encouraged to the utmost."

Turning now to the mineral gallery of the Museum and the lessons to be learnt from it. The system adopted in its arrangement is the exhibition of an index series, intended to serve as a general introduction to the study of minerals, while the bulk of the gallery is devoted to an exhaustive collection of the minerals and rocks of Southern India (the Madras Presidency, Mysore, and Hyderabad). I notice, as a marked sign of the increasing interest in mineral enterprise, that whereas, a few years ago, I rarely received any references relating to minerals, I am now constantly being consulted by those engaged in commercial undertakings, in connection with the economic contents of the mineral gallery, or with the identification and possibilities of minerals sent to me for report. Many there are whose vain hopes I have shattered by a cold-blooded statement that a glistening mineral, which they have sent to me as gold, is "iron-pyrites of no commercial value." On one occasion a specimen was sent to me as a meteorite, which had fallen into a distinguished native gentleman's garden, but I "had the honour" to report that it was a brick.

The development of the mineral resources is, to my mind, one of the most conspicuous features of the last decade, so far as Southern India is concerned. In the first half of the present century, large sums of money were lost in mining for copper in the Nellore district, and the beryl, or aqua-marine, mines of Coimbatore were worked on contract with Government. Old workings, with excavated galleries, at Jungumrazpalli in the Cuddapah district, indicate that extensive mining for galena (the most important ore of lead) was carried on at some former time. The Singareni coal fields are at the present day turning out large quantities of coal annually, and coal has been won on a smaller scale on the Gódávari river. The Mysore gold mines, which, in 1894, turned out gold to the value of $14\frac{1}{8}$ million rupees, have now an established position as gold producers. The Gor-do-norr diamond, which was picked up some years ago by a ryat at Vajrakarur in the Anantapur district, and weighed originally $67\frac{1}{4}$ carats, was sold to the Nizam of Hyderabad for Rs. 1,65,000. Graphite (plumbago or black-lead), which is used for making lead pencils, polishing stoves, reducing the friction of machinery, and making crucibles, is being worked on a commercial scale in Travancore, and manganese ore in the Vizagapatam district. Attention has of late been directed to the deposits of corundum (which, when red, is the true ruby, and, when blue, the sapphire) in the Madras Presidency and Mysore, as a valuable article of export on account of its possible use for the manufacture of aluminium. Mica (which is commonly known as talc), from the Inikurti mine in the Nellore district, has yielded a considerable profit to the enterprising gentleman who worked it, and there is no reason why still larger quantities of this mineral should not be found in the Nellore district, the Wynád, Mysore, Travancore, and other localities. A rich deposit of phosphatic nodules has been brought to light in the Trichinopoly district, and their value as a fertiliser to crops is being practically tested by planters and manufacturers of artificial manures. Of the iron ores of Southern India (magnetite, hæmatite limonite, göthite, and chromite) magnetite is by far the most abundant. The iron ores of Southern India are practically inexhaustible in amount, and "the scarcity of fuel is the principal — perhaps the only — drawback to the successful development of the iron ores in various districts of the Madras Presidency. The iron industry, which was formerly so extensive, has died out on account of the increasing scarcity of fuel and the importation of cheap iron from England. In several parts of the country we still find slag heaps standing in evidence of a formerly flourishing industry, which is hundreds of years old." Steatite, or soapstone, is widely distributed throughout Southern India, and largely employed in the manufacture of domestic utensils. Messrs. Sugg and Co., it may be noted, reported favourably on a specimen from Maddawaram in the Kurnool district, from which good gas-burner tops were made. Clays, suitable for the manufacture of pottery, are also widely distributed throughout Southern India, but a more accurate knowledge of the physico-chemical composition of these clays is required as the first step towards their employment for commercial purposes, *e.g.*, the manufacture of crockery. Quartz, the most common of minerals, is represented by rock-crystal, smoky quartz, quartz cat's eye (of which the Museum possesses fine specimens from the

Nallamallai hills beyond Cuddapah), and " Vallam stones," which are found at Vallam in the Tanjore district, collected by lapidaries, and cut into various useful and ornamental articles. The Museum possesses specimens, from the Madura district, of the clear and pure variety of calcite (carbonate of alcium) known as Iceland spar or doubly-refracting spar, which is largely used in optical instruments for affording polarised light. Asbestos, which is unaffected by heat, and used for lining iron safes, as a packing for steam-pipes and boilers, and in gas-stoves, is represented in the Museum collection from the Salem district, the Vellore bazár, and Mysore; and selenite, or gypsum, which, when heated, falls to a powder as " Plaster of Paris," from the Anantapur, North Arcot, Trichinopoly, and Madura districts, Mysore, and Hyderabad. Asbestos and gypsum are both valuable economic minerals, concerning the abundance and distribution of which more precise information than we at present possess is required.

Specimens of all these minerals are on the table for your inspection. Enough has been said in the sketch, brief as it is, to show how rich are the mineral resources of Southern India. I notice that the Bengal Government has recently arranged with several mines to enable students in the mining class at the Sibpúr College, Calcutta, to gain practical experience, and have undertaken to pay a premium of Rs. 500 for each boy who is received as an apprentice in the mines. This is a distinct advance in the right direction, and I should, I confess, like to see our Madras students of geology compelled, as a part of their curriculum, to conduct and witness the carrying out of prospecting and mining operations, and equipped with sound, practical knowledge of field-work, and fitted to direct the work of quarrying, boring, digging and searching for, winning, and working minerals.

I gather, from examination of the University calendar, that the history course, prescribed for the B. A. Degree, includes " Ethnology regarded as the science of the formation, distribution and classification of races, and descriptive of their manners, customs, religion, language, mental and physical characteristics; its methods, and main features of its connection with (1) anthropology, (2) archæology, (3) comparative philology. Classification and description on the basis of anthropology of cranial development; facial angles; weight of brain; colour of hair; skin; eyes; term of life; archæology; ancient weapons and implements; pottery; architecture."

Of this mixed group of correlated subjects, I have first a very few words to say concerning comparative philology and archæology. The Madras Museum is, to borrow a phrase once used by Professor Huxley, " a consultative library of objects," which is supplemented by a public consultative library of books; and it is more especially to the latter that you should refer for information, over and above that which is derived from lectures and text-books, in connection with the study of comparative philology, though you will find material for interesting study in the rich collection of copper grants, which have been published, with translations, in the Epigraphia Indica. In the library you will find Burnell's 'Elements of South Indian Palæography,' Caldwell's 'Comparative Grammar of the Dravidian Languages,' the various writings of Max Müller, the 'Epigraphia Indica,' and a host of other works bearing on nearly every known language, ancient or modern. In the pursuit of knowledge of archæology, more especially so far as Southern India is concerned, you will be able to study, in the archæological section of the Museum, those wondrous sculptures from the Amarâvatî stûpa on the Kistna river, which bear evidence of Greek or Baktrian art, and the date of which has been placed in the latter half of the second century; the stone flakes, celts, scrapers, hammers, etc., found in different parts of Southern India; and the numerous objects in iron, bronze, shell and pottery, discovered in cairns and cromlechs on the Nilgiri hills, and in other localities. But your study of the archæological collections should be supplemented by reference, in the library, to such works as Breeks' 'Primitive Tribes of the Nilgiris,' Phillips' 'Report on Tumuli in the Salem district', the publications of the Archæological Survey of India, etc.

Anthropology is divided, according to modern nomenclature, into two main divisions, anthropography and ethnography. "The former treats of man and the varieties of the human family from a purely animal point of view, that is, from a structural and functional aspect, while the latter deals with him as a social and intellectual being, and includes enquiries as to his manners, customs, institutions, history, traditions, language, religion, intellectual aptitudes, industries, arts, etc."

The Madras Museum has quite recently become a centre for the study of anthropology (a bureau of anthropology), and I had the pleasure of recording, in my last administration report, that an entirely new departure has been made by the commencement of a detailed anthropological survey of the races, castes, and tribes, which inhabit Southern India. This survey includes not merely the record of anthropometric measurements, but also detailed record of descriptive characters (skin, eyes, hair, face, etc.), personal adornment, clothing, tattooing, manners and customs, religion, ceremonial observances, marriage customs, games, arts, industries, etc. Further, photographs are taken, and collections of jewelry, clothing, weapons, domestic utensils, models of dwelling huts, etc., acquired, and exhibited in the Museum, which will thus become, in course of time, a guide to the anthropology of the Native inhabitants of Southern India, illustrated by objects and pictures.

"The more remote and unknown the race or tribe, the more valuable is the evidence afforded by the study of its institutions, from the probability of their being less mixed with those of European origin." Tribes which, only a few years ago, were living in a wild state, clad in a

cool and simple garb of forest leaves, buried away in the depths of the jungle, and living, like pigs and bears, on roots, honey, and other forest produce, have now come under the domesticating, and sometimes detrimental, influence of contact with Europeans, with a resulting modification of their conditions of life, morality, and even language. The Paniyans of the Wynád, and the Irulas who inhabit the slopes of the Nilgiris, now work regularly for daily wage on planters' estates; and I was lately shocked by seeing a Toda boy studying for the third standard in Tamil, instead of tending the buffaloes of his mand. The Todas, whose natural drink is milk, now delight in bottled beer, and a mixture of port wine and gin, which they purchase in the Ootacamund bazár. On one occasion, I am told, a planter met two stalwart Todas returning from a funeral ceremony, and carrying across their shoulders a bundle, which, on examination, resolved itself into a Toda woman in a very advanced stage of intoxication.

"The rapid extermination of savages at the present time, and the rapidity with which they are being reduced to the standard of European manners, renders it of urgent importance to correct these sources of error as soon as possible." Ample proof can be adduced in support of the fact that European influence, import trade with other countries, and the struggle for existence, are bringing about a rapid change (said from an ethnographic standpoint) among the native inhabitants of Southern India, both civilised and uncivilised. The employment of tiles and kerosine tins in lieu of primitive thatch; the import of cotton piece goods, which represents roughly 40 per cent. of the total import trade, and of umbrellas to the value of over 4,000,000 rupees annually; cooly trade and migration by sea to Assam, Burma and Ceylon; the decline of the national turban in favour of the less becoming porkpie cap or knitted night cap of gaudy hue; the replacement of peasant jewelry of indigenous manufacture by the importation of beads and imitation jewelry made in Europe, and accurately copied, in many instances, from specimens sent to Exhibitions, and purchased by the agents of the manufacturers; the abandonment of the use of indigenous vegetable dyes in favour of the cheaper and more rapidly operating anilin and alizarin dyes; the use of lucifer matches by 'aboriginal' tribes, who formerly made fire by friction; the supply of new forms of food, and of beer and spirits, in the bazárs; the influence of the Government in suppressing thuggi, sutti, the human (meriah) sacrifices of the Khonds, and Toda infanticide; the administration of justice; the spread of education; religious teaching:—these and many other factors are the causes, or signs of, a radical change in the ethnographic conditions of the country.

A Toda lassie curling her ringlets with the assistance of a cheap looking-glass; a Toda man smeared with Hindu sect marks, doing púja, and praying for male offspring at a Hindu shrine; a Bengali babu with close-cropped hair and bare head, clad in patent leather boots, white socks, dhuti, and conspicuous unstarched shirt of English device; a Hindu or Parsi cricket eleven engaged against a European team; the increasing struggle for small paid appointments under Government—these are a few examples of changes resulting from the refinement of modern civilization.

It has recently been said that "there will be plenty of money and people available for anthropological research, when there are no more aborigines;' and it behoves our museums to waste no time in completing their anthropological collections. I, for my part, should not be surprised if, a few years hence, a new "common object of the sea shore" appears in the form of a Toda student, dressed more elaborately than in the tribal cloth, and discussing social and political questions with his fellow students on the Madras marina.

I notice that, at the last B. A. Degree examination in ethnology, one question ran as follows:—Point out the value of (*a*) the hair; (*b*) the skull; (*c*) the face, as distinctions of race. Were I, with my love of practical tests, concerned in the answers to this comprehensive question, I should expect the candidates to show signs that they are not only "almost at bursting under" the weight of book-knowledge, but familiar with the method of determining the facial angle with the goniometer, of practically estimating the most important measurements of the skull, and of measuring that most important member, the nose, with the compasses, callipers, and tape. It has been laid down as an axiom that the intelligence is in inverse proportion to the breadth of the nose; and, when I am investigating the claims of applicants for a clerkship in my office, I am in the habit of scrutinising the nose as well as the hand-writing, though I do not advertise the fact, in the local papers or gazette, that "no one with a nasal index exceeding 78 need apply."

I have, in a rapid summary, given you an outline sketch of the scope and contents of the institution which it is my pleasure and privilege to direct, and which I jealously guard as being, to a great extent, a child of my own creation. It only remains to thank you, Gentlemen, for affording me an opportunity of giving public expression to my views, and to thank you, Mr. Chairman, for presiding over a lecture which has, to some extent, poached on your preserves of Technical Education, which I only yesterday saw ingenuously defined, at an examination, as "the fine arts, the drawing, the painting, the carpet weaving, the making statues, and last, but not least, the short-hand writing."

(Signed) EDGAR THURSTON,
Superintendent, Government Museum.

GOVERNMENT OF MADRAS.

PUBLIC DEPARTMENT.

ORDER—No. 454, Educational, dated 1st August 1896.

Mr. Thurston's report on the administration of the Museum has been perused by His Excellency the Governor in Council with much interest. The record of the year's work is again satisfactory.

2. The number of visitors to the Museum was the highest on record, as was the number of gosha visitors who availed themselves of the days specially set apart for them. Of the total number of visitors nearly 43 per cent. were of the female sex.

3. The proposal that the Museum should be open to the public on Sundays has been approved in G.O., No. 310, Educational, dated 19th May 1896.

4. It is noticed with satisfaction that further progress has been made in the anthropological survey of the races, castes and tribes of the Presidency.

5. The total expenditure on the maintenance of the Museum during the year was Rs. 29,539, which closely approximates to the budget and revised estimates.

6. The Government thoroughly approves of Mr. Thurston's view that the technical and economic side of the Museum should be extended and developed as far as is possible. District officers have it in their power to render the Superintendent material assistance in this direction, and copies of the annual administration reports will, in future, be communicated to all Collectors, who will be requested to draw the attention of officers subordinate to them to the importance of the matter.

7. The thanks of Government are due to the gentlemen named in the report who have been good enough to add to the attractions of the Museum by gifts of books and exhibits of interest.

(True Extract.)

J. F. PRICE,
Chief Secretary.

Administration Report of the Madras Government Museum for the year 1896–97, with the review thereon.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper :—

From A. G. BOURNE, Esq., D.Sc., F.R.S., Acting Superintendent, Government Museum, to the Secretary to Government, Educational Department, dated Madras, 8th July 1897, No. 492.

I have the honour to forward for submission to His Excellency the Governor in Council my report on the working of the Government Museum during 1896–97, and to request that I may be supplied with 160 copies for distribution to other museums, &c.

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM FOR THE YEAR 1896–97.

I had charge of the Museum during two months of the year only. This report is, therefore, largely compiled from the notes given to me by Mr. Thurston. The two most important events of the year were the opening of the Connemara Public Library and new Museum buildings by His Excellency the Governor on the 5th December 1896 (see appendix E) and the closing of the Museum and Library from the 7th March onwards owing to the dangerous condition of the tower, and the necessity for its demolition. The Museum has not been, as far as I can learn, so closed to the public for any length of time since 1864, when a considerable portion of it was re-roofed.

2. VISITORS.—The total number of visitors to the old Museum buildings from the 1st April 1896 to the 6th March 1897 was 306,548 and that to the new buildings from the 6th December 1896 (the date of their being open to the public) to the 6th March 1897 was 128,517.

It is difficult to compare these figures with those of previous years.

In the first place I calculate from the records of previous years that about 20,000 visitors have been excluded from the old buildings alone by the closing of the Museum and further, since the opening of the new buildings, separate tallies have been kept for the old and new buildings and it is an undoubted fact that many visitors enter the one or the other only. On the 14th January (Pongul feast) there were 44,549 visitors to the old buildings and 32,792 to the new. A large gathering of members of the Madras Teachers' Guild visited the Museum in August and were taken round the galleries by Mr. Thurston who explained to them the scope and objects of the Museum so far as its purely educational aspect is concerned.

On four occasions I gave demonstrations in the Museum to my classes from the Medical and Presidency Colleges. The number of gosha females who visited the Museum on the days set apart for them (first Saturday of each month) during the year is 2,161 against 2,444 in the previous year.

3. SUNDAY OPENING.—The Superintendent's proposal that the Museum and Library should be closed on Fridays and open on Sundays was approved in G.O., No. 310, Educational, dated 19th May 1896. They were open for the first time on Sunday, 14th June 1896.

The number of Sunday visitors from that date to the end of February was 17,110 in the old buildings and 8,316 (from 6th December 1896) in the new buildings being an average of 450 per Sunday in the old Museum buildings and 640 in the new Museum buildings.

Mr. Thurston anticipated that the Sunday opening would specially appeal to literate classes who cannot get away from their work on week days. His anticipation

has been, I find, fully realised. The proportion of those able to sign their names to those unable to do so having been about 1 to 6 on week days but as much as 1 to 3 on Sundays.

4. ESTABLISHMENT.—Changes were caused by the death of the herbarium-keeper and a gallery attendant and by the retirement of the first attendant, Connemara Public Library, and a gallery attendant. The vacancies so caused have been filled up during the year. The establishment for the Connemara Public Library and the new Museum buildings, which was sanctioned in G.O., No. 916, Educational, dated 4th December 1895, was entertained during the year.

5. TOURS.—Two official tours were made by Mr. Thurston during the year accompanied by the Second Assistant, viz. :—

(1) To continue the anthropological survey of the tribes of Southern India.

(2) To carry out an investigation at the weaving and dyeing centres in connection with the preparation of a monograph on cotton fabrics.

He was also absent from head-quarters for a short time to visit Ootacamund in connection with the transfer of the herbarium to Madras and the examination of the Botanical Library.

6. ANTHROPOLOGY.—Mr. Thurston reports as follows :—

While at head-quarters in Madras, I carried on an investigation of the Pathan, Saiyad, and Sheikh Muhammadans, who "claim to be descendants of immigrants from the north and are distinct from the converted Dravidians, the Mappilas and Labbais" (Census Report, 1891). Their claim is no doubt justified; but well-marked signs of admixture of Dravidian blood are conspicuous in some members of their communities whose dark skin and high nasal index betray their Dravidian ancestry.

In the course of my annual tours a study was first made of the Malaiális of the Shevaroy Hills under great difficulties resulting from their fear that I was going to take possession of their lands on behalf of the Government and transport them, with their wives and children, to the penal settlement in the Andamans. These people, descended according to tradition from Vellálas of the plains, who migrated to the Salem hill ranges from Conjeeveram, have no claim to be considered as a true hill tribe.

During a brief stay on the Nilgiris a number of Kanarese Pariahs working on the Cinchona estate at Naduvatam were investigated for the sake of comparison with the Tamil Pariahs; and, in the Ouchterlony valley, a few Kurumbas and Sholigas (jungle tribes) were placed at my disposal by a planter for anthropometric purposes. A dwarf Sholiga (the son and brother of dwarfs with hereditary polydactyly), 3 feet 4 inches high, with a normal nose 4 cm. × 4·1 cm. (nasal index 102·5) was the most quaint specimen of native humanity which I have come across. The measurements of a single family of a small colony of Chinese who have settled between Naduvatam and Gúdalúr, and intermarried with Tamil Pariah women, were recorded. It will be interesting to note hereafter what is the future of the younger members of the colony, and to observe the physical characters, temperament, improvement or deterioration, fecundity and other points relating to the cross-breed resulting from the union of Chinese and Tamil.

A more prolonged stay was made at Shimoga in the Mysore Province where I was engaged in investigating the Nomad Lambádis (or Brinjaris) who speak an Aryan language and show in many instances physical signs of their Aryan descent; the miserable Koramas, who combine professional thieving and bird-snaring with the more orthodox occupation of basket-making; and the civilised Tiru Kurubas, who were specially selected for comparison of their physical characters with those of the jungle Kurumbas. The affinities of Kurubas and Kurumbas afford scope for an exhaustive enquiry, which will be taken in hand after my return to India.

The following summary shows the work done by me in connection with the anthropological survey up to the present time :—

Locality.	Tribe or caste.	Number measured.	
		Male.	Female.
Nilgiri Hills ..	Todas	25	25
	Kotas..	25	20
	Badagas	40	..
	Irulas	25	..
	Kurumbas	15	..
Mysore jungles ..	Sholigas	3	..
Shevaroy Hills ..	Malaiâlis	36	..
Wynaad	Paniyans	25	12
	Muppas	24	..
South Malabar ..	Tiyans	25	25
	Cherumans	25	25
	Pattar Bráhmans	25	..
Coimbatore ..	Kongas	20	..
Madras City ..	Tamil Bráhmans	40	..
	,, Pariahs	40	..
	Kammâlans	40	..
	Pallis	40	..
	Vellâlas	40	..
	Sheik Muhammadans	25	..
	Pathan ,, ...	25	..
	Saiyad ,, ...	25	..
Mysore	Kanarese Pariahs	33	..
	Kurubas	25	..
	Koramas	25	..
	Lambâdis	40	40
	Total ..	711	147

The material indicated in the above summary has been brought together during the last two years amid other duties of a manifold nature; and including, as it does, examples of dwellers in the plains, on the hill tops, in the jungles at the bases of the hills, and on the Mysore plateau, it may, I think, be taken as fairly representative, and has been used in Bulletin No. 5 for the purpose of generalisation.

As one result of my work in connection with the survey, the Museum now possesses a valuable series of photographic negatives of various tribes and castes, available for reproduction, distribution, or manufacture of lantern slides for lecture purposes.

An anthropological laboratory on the ground floor of the new buildings has been partially fitted up.

It will be necessary to procure a set of measuring appliances for the purpose of research as those hitherto in use were kindly lent by the Asiatic Society of Bengal. A series of skulls of Europeans, Jews, Hindus, Muhammadans, Cherumans, Burmese, Sinhalese, Andamanese, Mongolians and Negroes have been deposited by the Medical College authorities as a loan collection and should prove useful for study by students reading for the University degree in History, which includes Ethnology.

Diagrams and maps from the Statistical Atlas of India, 1895, and Mad
Report, 1891, relating to language, population, religio
displayed.

Other additions have been—

A skeleton of a young ourang-utan, prepared from a specimen which died in the People's Park together with a set of ourang-utan finger-prints taken by Dr. Bourne.

A section of a skull of a horse to show the small size of the brain cavity relative to the size of the skull, *i.e.*, the horse's head is nearly all nose.

A skull of a gibbon.

A section of a human skull, to show brain cavity and prognathism.

7. Ethnology.—The following additions have been made to the collections:—

Miniature models of utensils (brass) used by Bráhmans, made at Palghat.

A collection of apparel and ornaments worn by Lambádis.

A collection of Khond articles procured by C. J. Weir, Esq., while Collector of Ganjám.

A collection of nets and snares for catching animals and birds used by Koramas of Mysore.

A rat-trap and animal snare used by the Kadirs of the Anamalais.

A collection of ornaments worn by the Savaras of Ganjám, presented by the Bissoyi of Gumma.

A ladder used by Kurumbas for collecting honey on steep precipices.

Photographs of Kadirs of the Anamalais.

A palm-leaf hat worn by Tiyyans on pilgrimage to the Kottiyur temple, North Malabar—donor Mr. M. Raman—and a Tiyyan marriage apron.

8. ARCHÆOLOGY.—Three sets of the following copper plates from the Ganjám district were received from Dr. E. Hultzsch, Government Epigraphist:—

Plates of Prithivivermadêva.
Nadagâm plates of Vajrahasta.
Kômarti plates of Chandavarman.

A set of five plates with lion seal, found at Chikkulla in the Vizagapatam district and published by Professor Kielhorn in the *Epigraphia Indica*, Vol. IV, was also received from him for deposit in the Museum. Besides these, eighteen copper plates from Gódávari of the kind noted below:—

(*a*) A set of five plates with boar seal,
(*b*) A set of five plates with worn seal,
(*c*) A set of five plates with plain ring,
(*d*) Two hinged plates,
(*e*) A single plate,

were also received from him for deposit.

9. ART.—The following additions were made to the Art, Industrial and Ethnological section of the Museum:—

Pith models, Trichinopoly.
Ivory carvings.
Carved wooden pillar—about 600 years old—from the palace of the Chowter at Puttige procured by W. H. Welsh, Esq., Collector of South Canara.
Cocoanut-carving from the School of Arts, Trivandrum.
Tirupati redwood toys.
Wood-carving from Trivandrum.
Images from Tanjore.
Ethnological series and art wares represented by photographs.
Hand-painted and other palempores.
Blocks used for block-printing from Arcot and Walajanagar.
Steel jacket made of steel rings as used during war in olden days.

10. NUMISMATICS.—The Museum was consulted in connection with a suit concerning hidden treasure in the Salem District Court. The coins were star pagodas of the East India Company, and pagodas of Kishna Raja Wodeyar of Mysore.

Under the Treasure Trove Act, 122 silver "punch marked Buddhist" coins found in the Bimlipatam taluk of the Vizagapatam district were received for distribution.

A find of sixteen gold coins was received from the Kistna district. The treasure was found in a metal box by coolies when digging in a mound called *pati dibba* (old village site) in the village of Gudur near Masulipatam. This very valuable find of which an account has been published in the *Indian Antiquary* by Dr. E. Hultzsch, Government Epigraphist, included the following:—

(1) Three coins, with boar emblem of the Eastern Chalukyan King Râja-râja, A.D. 1022—1063.

(2) Two coins with tiger emblem, doubtfully ascribed to the Chola King Râjanârâyane.

(3) Nine coins with lion emblems, doubtfully ascribed to the Western Chalukyan Kings Trailôkyamalla and Jayasimha.

Among other finds, though it was not acquired for the Museum, was an aureus of Theodosius, which was picked up by ryots when ploughing a field in a hilly place to the south-east of Kóttayam.

Copper coins of Tipu Sultan (addenda to existing collection of Mysore coins) were presented by Mr. S. C. P. Scott, Superintendent of Police.

A valuable series of Nepalese coins of the old Malta and present Gurlcha dynasties and of the sixth century A.D. were acquired by purchase.

11. Botanical and Economic.—The botanical index series was added to by means of dried specimens during Mr. Thurston's tour on the Nilgiris.

I have provisionally arranged the economic and timber collections in the gallery set at liberty by the transfer of the art collection to the new building.

Seasoned timbers of guava (*Psidium Guyava*) and Liberian coffee grown in the Wynaad were received from Mr. H. B. Winterbotham for examination as to their possible use as box-wood substitutes, or for engraving purposes generally. Both proved unsuitable, as a clean cut can only be obtained in one direction, the edges becoming jagged when a cross cut is made. For turning on the lathe, the Liberian coffee wood is rather better than that of *Holarrhena antidysenterica*, which is used in the manufacture of lacquered toys at Vellore.

Specimens of the beetle (*Oryctes rhinoceros*), referred to in the last report, were received from Cochin, where they were reported to be attacking the tender new shoots of leaves and "pods" of the cocoanut trees, which die within a year or two. "These borers", the report states, "are found in large numbers in succession, one above the other in a line, up to fifteen in a tree. Even when they are taken out and destroyed, and the holes filled up with sand, others manage to get in by boring a hole a little further off. Many owners have now engaged special coolies to destroy these creatures, and it has become one of the regular items of expenditure." The Indian Museum, Calcutta, recommended, as treatment of the pest, searching for the larvæ and pupæ, and destroying them; capturing the perfect insects by attracting them to fires of dry wood, or of refuse from the fields, since insects are readily attracted by light; and to cut down badly-affected trees, and burn them to ashes.

Insects (*Rhynchota-heteroptera*) received from Ganjám, where they were reported to be sucking up the mealy albumen of the young rice seed in paddy fields of some villages in the Goomsur division, were sent to the Indian Museum for identification, and proved to be rice sappers (*Leptocorisa acuta*)—*vide* Indian Museum Notes, Vol. I, pages 1—3, and page 205 Pl. 1, fig. 1. Collections, illustrating as completely as possible the various uses to which the different parts of the palmyra palm, cocoanut and bamboo are applied, were made at the request of the Honorary Secretary, Jeypore Museum, Jeypore, Rajputana.

In accordance with G.O., Mis. No. 154, dated 11th January 1897, Mr. Thurston proceeded to Ootacamund and arranged for the transfer of the herbarium to Madras. Such portions of the herbarium as were required by the late Mr. M. A. Lawson had been from time to time sent up to Ootacamund. Portions were returned by him to the Museum when done with and what has been recently transferred is the balance of the Museum herbarium together with the specimens added by him and at his instigation by Messrs. J. S. Gamble, late Conservator of Forests, J. Cameron of the Lal Bagh, Bangalore, and T. F. Bourdillon, Conservator of Forests at Travancore.

Since I took over charge I have been working continuously, examining the collection and incorporating it with that remaining in the Museum. Its condition will form the subject of a separate report to Government at as early a date as possible.

I have to record with regret the death of Abboy Naidu who held the post of herbarium-keeper for fifteen years.

K. Rangachari, M.A., has been appointed herbarium-keeper.

12. MINERAL GALLERY.—Samples in bulk of corundum were sent to the Imperial Institute, for report and analysis, from Karutapalaiyam in the Coimbatore district, and Sithampundi and Paparapatti in the Salem district.

Specimens of red corundum from Sithampundi were sent for report to Mr. E. W. Streeter, the Bond Street jeweller, who states that "they possess no merit for gem purposes. This class of stuff frequently comes from Afghanistan, and, though of no commercial value, it proclaims to the mineralogist that the geological formation, where this corundum is found, is favourable to the production of finer rubies, if systematically worked for."

Further specimens of red corundum found in certain putta fields of Chevuthu Rangampatty, attached to Komaripolliam, in the Námakkal taluk, of the Salem district, and native ear ornaments made therefrom were also received.

Five specimens showing corundum crystals in their matrix were received from Mr. Middlemiss of the Geological Survey. They were taken from the trial workings near Palakad, Salem district.

Steatite (*soap stone*).—Inquiries having arisen in connection with the supply of this mineral to the European market, large cubes of the mineral were exhibited from the Kurnool, Bellary, North Arcot, Salem, Malabar and South Canara districts. These are all of grey colour and compact structure; and the small hand specimens from the Salem district, of white colour and softer texture, would seem to comply more nearly with the conditions required for trade purposes in Europe.

Lumps of graphite (plumbago) from their graphite mine in the Gódávari district were presented by Messrs. Binny & Co.

An exceptionally good specimen of quartz containing visible gold from the Kolar gold field was presented by Mr. W. J. D. Sandford.

A series of blocks of the white, grey and flesh-coloured varieties of marble from the Madukarai marble beds near Coimbatore, cut and polished, were received from the Collector of Coimbatore and exhibited with a view to drawing attention to them in the Mineral gallery. Concerning these marbles Mr. C. S. Middlemiss, of the Geological Survey of India, wrote as follows in a recent report to Government: "The beauty and adaptability of the stone for ornamental purposes has been practically demonstrated by the church at Coimbatore, where it has been largely utilized. I think, if it were more generally known what handsome building material is available at this locality, a good demand for it would arise in Ootacamund and, possibly, in Madras. At present, beautiful white marble is being used, rough-hewn and unpolished for making drinking troughs for animals and for building walls."

Meteorites.—Two fragments of meteorites, weighing, respectively, 19·5 oz. and 7 oz., were received from the Madura district. The Deputy Tahsildar of Tiruppattúr reported that, "at 5 A.M., on the 27th October 1896, a body of light and flame passed in from the sky from west to east, accompanied by loud noise like peals, and by a volume of smoke. The stones fell and imbedded themselves in the earth, and were dug out by ryots, who said that the ground on which they fell was too hot to touch for some time, and that the stones themselves took some time to cool."

13. MAMMAL AND BIRD GALLERY.—The following are among the most important additions to the collections:—

A skeleton of a diminutive trotting bullock.

Photographs of elephants being landed on a raft in Madras Harbour, and being despatched to Mysore in railway trucks.

An enlarged photograph of a tiger lying dead at the mouth of a cave.

A stuffed head of a tiger and one of a black leopard.

A great hornbill (*Dichoceros bicornis*) from the Travancore hills.

The index collection was added to by the preparation and exhibition of the skull and lower jaw of a Tapir, showing herbivorous dentition, skeleton of feet of a Tapir, fore-foot with four toes; hind foot with typical perissodactyle arrangement of three toes, and the skull of Ovis hodgsoni (purchased).

The following birds were collected during the year:—

Corvus splendens (Indian house-crow).
Ægithina tiphia (Common iora).
Lanius lahtora (Indian grey shrike).
Pericrocotus peregrinus (Small minivet).
Oriolus kundoo (Indian oriole).
Terpsiphone paradisi (Indian paradise flycatcher).
Copsychus saularis (Magpie-robin).
Munia malacca (Black-headed Munia).
Passer domesticus (House-sparrow).
Alauda gulgula (Indian sky-lark).
Pyrrhulauda grisea (Ashy-crowned finch-lark).
Pitta brachyura (Indian pitta).
Xantholæma hæmatocephala (Crimson-breasted barbet or Coppersmith).
Ceryle varia (Indian-pied kingfisher).
Dichoceros bicornis (Great hornbill).
Caprimulgus asiaticus (Common Indian nightjar).
Hierococcyx varius (Common hawk-cuckoo).
Eudynamis honorata (Indian koel).
Centropus sinensis (Common coucal or crow-pheasant).
Strix flammea (Barn-owl or Screech-owl).
Hieraëtus pennatus (Booted eagle).
Haliastur indus (Brahminy kite).
Elanus cæruleus (Black-winged kite).
Astur badius (Shikra).
Tinnunculus alaudarius (Kestril).
Columba intermedia (Blue rock-pigeon).
Galloperdix spadiceus (Red spur-fowl).
Galloperdix lunulosus (Painted spur-fowl).
Coturnix communis (Large grey quail).
Turnix taigoor (Black-breasted bustard-quail).
Turnix dussumierii (Larger button-quail).
Sypheotides auritus (Lesser florikin).
Charadrius longipes (Golden plover).
Gallinago stenura (Pin-tailed snipe).
Gallinago scolopacinus (Common snipe).
Numenius arquata (Curlew).
Numenius phæopus (Whimbrel).
Philomachus pugnax (Ruff).
Tringa temminckii (White-tailed stint).
Totanus fuscus (Spotted red-shanks).
Metopidius indicus (Bronze-winged jacana).
Ardetta flavicollis (Black bittern).
Sarkidiornis melanonotus (Black-backed goose).
Nettapus coromandelianus (White-bodied goose-teal).
Dendrocygna awsuree (Whistling-teal).
Casarca rutila (Ruddy shieldrake).
Spatula clypeata (Shoveller).
Anas pœcilorhyncha (Spotted-billed duck).
Dafila acuta (Pintail duck).
Mareca penelope (Wigeon).
Fuligula cristata (Tufted duck).
Podiceps philippensis (Little grebe).

The Bronze-winged jacana (Metopidius indicus) and the Ruddy shieldrake or Brahminy duck (Casarca rutila) are very seldom brought to the Madras market.

Jerdon says about the Black bittern (Ardetta flavicollis), " This very handsome bittern appears to be generally diffused throughout India, but it is by no means common or abundant ".

14. MARINE GALLERY.—Skeletons of Corphæna hippurus and Rhinoptera adspersa were added to the collection.

A female of the Elasmobranch *Galeocerdo rayneri*, measuring 12 feet 9½ inches in length, was caught by fishermen with hook and line off Madras, and acquired for the museum. It was caught at 8 A.M., but it was not till 5 P.M. that it was landed on the beach. The uterus contained forty-nine young, measuring about eighteen inches in length. The stomach was quite empty. A specimen of this species, 12 feet 4½ inches long, was recorded by Sir W. Elliot. Jerdon remarked that "it is very cunning, and swells itself out so as to appear like a floating mass of animal substance, and, having thus decoyed its prey, it immediately attacks it."

A specimen of *Serranus lanceolatus*, 3 feet 5½ inches long, caught in the Fort St. George ditch, has been exhibited.

The following fishes were also added :—

Carcharias Melanopterus.
Arius sp.
Clupea ilisha.
Serranus sonnerati.
Lutjanus lineolatus.
Diagramma cinctum.
Holacanthus imperator.
Acanthurus gahm.
Tetrodon stellatus.

Parasites (Platyhelminthes) from the liver of the Elasmobranch, *Stegostoma tigrinum*, were sent to Professor Jeffrey Bell of the British Museum, for identification.

A collection of types of some of the Crustacea of the Madras Presidency, described by Mr. J. R. Henderson in his "Contribution to Indian Carcinology" were returned by Mr. R. I. Pocock of the British Museum, Natural History.

Shells of Anodon containing small pearls were sent by the Collector of Bellary. Pearls are known to form in fresh water molluscs but never attain any size and are generally irregular in shape and valueless.

15. LIVE ANIMALS.—*Echis carinata* and two water snakes have been added to this collection.

Python (*Python molurus*) ate 59 jerboa rats (*Gerbillus indicus*), 2 quails and 8 squirrels in the year. Shed its skin on the 12th April, 2nd July and 17th December 1896.

Rat snake (*Zamenis mucosus*) ate 135 green frogs in the year. Shed its skin 22nd April, 18th May, 15th June, 8th July, 5th August, 5th September, 5th October, 7th November, 14th December 1896, 17th January and 27th February 1897, *i.e.*, in every month.

Whip snake (*Dryophis mycterizans*).—One lived up to 11th December 1896 and ate 44 mice and six green frogs and toads. A new snake was procured on the 31st January 1897, which ate only one mouse up to the end of the official year. The first one cast its skin on the 28th May, 9th August and 25th October 1896, *i.e.*, in every three months.

Sand snake (*Eryx johnii*) ate 17 rats in the year. Cast its skin on the 24th April, 28th June, 18th September 1896 and 14th January 1897.

Sand snake (*Gongylophis conicus*) ate 65 rats in the year. Cast its skin on the 30th April, 4th June, 22nd July and 4th October 1896.

Tropidonotus stolatus ate 130 frogs. Cast its skin on the 28th June, 6th July, 27th July, 3rd September, 14th December 1896, 18th January and 27th February 1897. Laid one egg on the 17th August, one on the 20th August, two on the 22nd August, three on the 12th September, three on the 14th September, one on the 15th September and three on the 18th September 1896.

Krait (*Bungarus cæruleus*).—One krait ate 2 frogs from the 11th to 16th October 1896 and then died; another was secured on the 7th November, which ate 18 frogs, cast its skin on the 7th December 1896, 13th January and 27th February 1897.

Tree snake (*Dendrophis pictus*) ate 94 frogs up to 21st January and died on the 22nd January. Cast its skin on the 2nd April, 6th May, 28th June, 27th July and 29th October. A second specimen was procured on the 13th February which ate 18 frogs.

Russell's viper (*Vipera russellii*), young, ate 67 mice, 2 small rats, 5 squirrels and 4 frogs. Cast its skin on the 16th June, 31st July, 6th October and 27th December 1896.

Russell's viper (*Vipera russellii*) ate 27 rats and 5 squirrels. Cast its skin only once, *i.e.*, 17th November 1896.

Echis carinata.—Two specimens were exhibited on the 29th October and have, up to date eaten only 8 frogs.

The two aquatic snakes added were *Tropidonotus quincunciatus* and *Atretium schistosum*, the latter is called in Tamil Neer nagan, *i.e.*, water cobra from its power of dilating its head. Both the snakes eat frogs and fishes. Tropidonotus laid 36 eggs on the 26th February 1897.

16. Connemara Public Library.—The library was open for the benefit of the public from 14th April 1896, but the formal opening ceremony took place on the 5th December 1896.

The number of visitors to the library was 10,880 against 5,815 (Museum Library) in 1895–96. The number of volumes given out for reference was only 7,663.

The manuscript catalogue of the library has been brought up to 31st January 1897.

The following is a summary of additions to the library:—

(1) A list of works purchased, selected chiefly from the suggestion book kept in the library, is given in appendix C.

(2) Some standard works, a large collection of Parliamentary Papers, old *Fort St. George Gazettes*, and Madras University calendars were received from the Chief Secretariat.

(3) The library is indebted to M.R.Ry. C. V. Sundara Sastry, B.A., B.L., for the present of a large collection (about 1,000 volumes) of interesting books consisting of Latin, Greek, German, French, Arabic, Persian, Hindustani, English works, &c., which belonged to the late C. V. Ranganadha Sastry.

(4) The total number of standard works added to the library by purchase and gift was 338, excluding the collection of books presented by C. V. Sundara Sastry, which has not yet been catalogued.

The shelves are now very crowded, but space will be available, sufficient for some time to come, when the Literary Society's library is removed.

17. Valuable Stock.—The necessary inventory of stock was maintained and duly checked. The collections were all in good order at the end of the year.

APPENDIX A.

Visitors to the Natural History and Archæological Section of the Government Museum from 1st April 1896 to 6th March 1897.

1896-97.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Singalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	440	654	286	2,588	2	13	8	39	4	..	31	2
May	347	855	760	2,786	14	..	21	74	3	..	47	38
June	527	848	264	3,046	11	12	19	43	1	1	9	1
July	400	891	260	2,959	26	9	9	49	..	4	46	1
August	524	783	388	3,481	6	10	31	36	..	2	28	10
September	489	793	201	2,971	15	2	32	45	11	..	43	15
October	425	484	186	2,855	1	..	27	25	3	..	23	7
November	370	486	161	2,081	6	1	11	24	..	..	21	1
December	679	1,619	391	5,128	39	..	115	93	..	3	90	11
January	694	1,245	427	4,186	38	..	69	76	..	1	144	..
February	353	590	217	2,663	8	..	24	26	..	1	24	2
March	49	125	22	575	..	..	2	4	..	..	..	5
Total ..	5,297	9,373	3,563	35,319	166	47	368	534	22	12	506	93

1896-97.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
April	4,067	17,430	21,497	12,760	8,737	21,497
May	4,945	18,857	23,802	14,034	9,768	23,802
June	4,782	19,040	23,822	13,689	10,133	23,822
July	4,654	17,531	22,185	13,486	8,699	22,185
August	5,299	19,480	24,779	15,095	9,684	24,779
September	4,617	16,552	21,169	12,793	8,376	21,169
October	4,036	13,848	17,884	11,012	6,872	17,884
November	3,162	10,278	13,440	8,586	4,854	13,440
December	8,168	38,007	46,175	25,561	20,614	46,175
January	6,880	65,378	72,258	34,656	37,602	72,258
February	3,908	13,170	17,078	10,633	6,445	17,078
March	782	1,677	2,459	1,588	871	2,459
Total ..	55,300	251,248	306,548	173,893	132,655	306,548

Visitors to the Art, Industrial and Ethnological Section of the Government Museum from 6th December 1896 to 6th March 1897.

1896-97.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Singalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
December	238	1,118	280	3,834	72	..	60	59	22	..	152	.
January	360	1,227	478	3,560	50	..	90	112	19	..	230	..
February	189	1,242	390	1,634	40	2	43	88	..	..	105	4
March	30	180	90	272	23	..	3	20	2	..	12	3
Total ..	817	3,767	1,238	9,300	185	2	196	279	43	..	499	7

1896-97.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
December	5,835	32,175	38,010	19,747	18,263	38,010
January	6,126	59,214	65,340	33,592	31,748	65,340
February	3,737	16,926	20,663	12,152	8,511	20,663
March	635	3,869	4,504	2,572	1,932	4,504
Total ..	16,333	112,184	128,517	68,063	60,454	128,517

APPENDIX B.

Donations, 1896–97.

Abdur Rahim Sahib, Mr.—
Snake (Chersydrus granulatus) young.

Asiatic Society of Bengal—
Rupees of the following Moghul Emperors:—Shāh Jahān, Aurangzíb, Bahādur Shāh, Shāh Alum.
Silver coins of the so-called Indo-Sassaman class and commonly known as "Gudhia ka paisa" found in the Ferozpur district.
Small silver coins belonging to Sabaktigin found in the Bannu district.

Bagshawe, Mr. B. M.—
Scorpions and Thelyphonus.

Balasundra Moodeliar, Mr. V.S.—
Three armlets made of golden coloured straw.
Grass box.
Two fruits or coyees known as right twist or screw and left twist or screw.
Two black seeds of liquorice.

Bellary district Collector—
Shells of fresh water mollusc and four small irregularly shaped pearls.

Benson, Mr. C.—
Samples of Rhea Fibre products prepared by the Rhea Fibre Treatment Co., London.

Binny & Co., Messrs.—
Fibrous graphite.

Branfoot, Mrs.—
Maroon-Backed kite (Haliastur Indus).
Shikra (Astur badius).
Common Hawk-cuckoo (Hierococcyx varius).
Indian koel (Eudynamis honorata).

Campbell, Mr. W. H.—
Thelyphonus sp.
Scorpions.

Carupaswami Pillai, Mr. V.—
Chicken with four feet and wings.

Clifford, Mr. W. J.—
Black scorpion.

Cuddapah district Sub-Collector.—
A peculiar sort of ear of cumboo corn.

Daly, Mr. W. M.—
Land shells—
Nanina thyreus.
Nanina shiplayi.
Pterocyclos nanum.
Cyclophorus nilghericus.
Neritina Perrotettiana.
Melania tuberculata.
Paludina dissimilis.

D'Arcy Evezard, Mr.—
Flying lizard (Draco dussumieri).

Dunsterville, Mr. F.—
A scorpion.

Ganjám Agent to the Governor—
Savara Jewelry.

Hatchell, Mr. D. G.—
Leaf mantis.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

Hearsey, Mr. T. N.—
Silk. Theophila Huttoni.
Hultzsch, Dr. E.—
Three copper plates from the Ganjám district.
Plates of Prithivivarma dêva.
Nadagâm plates of Vajrahasta.
Kômarti plates of Chanda Varman.
Jones, Mr. J. A.—
Snake (Tropidonotus piscator).
Kistna District Forest Officer —
Sections of Hardwickia binata.
LeFanu, Mr. J. H.—
Blue clay.
Mackenzie, Mr. A. T.—
Grass (Anthistiria cymbaria).
Madura district Collector.—
Meteorites.
Maiden, Mr. J. W.—
Scorpions found in Masulipatam.
McCarthy O'Leary, Mr.—
Beetle.
Middlemiss, Mr. C. S.—
Corundum in matrix rock from the trial workings near Palakod, Salem district.
Moore, Mr. E. J.—
Centipede. Scolopendra sp.
Municipal Commission, Madras—
A black monkey.
Ourang-utan.
Leopard (Felis pardus).
Brown stump-tailed monkey (Macacus arctoides).
Mysore Government Museum Superintendent.—
Lacquered toys and fruits from Chennapatna.
Silver Roman coins.
Naganna Naidu, Mr. S. C.—
Snake (Ademiophis intestinalis).
Nellore District Forest Officer—
Garnets.
Phipps, Mr. C. E.—
Insect—Mantis sp.
Raman, Mr. M.—
Tiyyan Pilgrims' hat.
Resident in Travancore and Cochin—
Pearl oysters (Avicula fucata).
Royal Asiatic Society (Bombay Branch)—
Silver coins of Shah Jahan, Aurangzeeb and Timur Shah found in the Shikarpur district.
Sandford, Mr. J. D.—
Nest of purple sun-bird (Arachnechthra Asiatica) or purple-rumped sun-bird (Arachnechthra Zeylonica).
A piece of auriferous quartz with visible gold from the Mysore mines.
Scott, Mr. S. P. C.—
Coins.
Indo-Portuguese.
E. I. Company.
Coins of Tipu Sultan.
Serajudin Sahib, Mr.—
Thelyphonus sp. "False scorpion."
Indian Oriole. Oriolus Kundoo.
Sewell, Mr. E. J.—
Painted Bat (Cerivoula picta).
Sherman, Mr. C. M.—
Sponges. Gulf of Manaar.
South Canara, Collector of—
Two crowns; one Bant knife; one devil sword; one lattice window; four cock-fighting knives; two pillars.
Sultan & Co.—
Sultan Water-lift Model.
Superintendent, Royal Botanical Gardens, Calcutta—
Herbarium specimens.

Thornhill, Surgeon-Major W. H.—
Insect—Mantis sp.
Upshon, Mr. L. H.—
Black scorpion.
Upshon, Mr. C. W.—
Black scorpion.
West, Mr. H. C.—
Death's-head Hawk-moth. Acherontia Lachesis.
Moth. Daphnis nerii.
Wilson, Mr. V. S. F.—
Collection of Lepidoptera from Malabar.

APPENDIX C.

List of Books added to the Library.

Donations.

Anderson, J.—English Intercourse with Siam, 1890. (Trübner's Oriental Series.)
Apte (Raghunath Narayan).—The Doctrine of Maya, 1896.
Atlas, Bombay Presidency, Statistical, 1888.
Do. India, Statistical, 1886 and 1895.
Aufrecht, Th.—Halayudha's Abhidhanaratnamala. Sanskrit Vocabulary, 1861.
Bather, F. A.—A record of, and Index to the Literature of Echinoderma, 1896.
Beavan, R.—Hand-book of the Freshwater Fishes of India, 1877.
Bhavanagra Pracina Sodhasagraha, Bagha I.
Birdwood, Sir G. C. M.—Industrial Arts of India, 1880.
Blanford, W. T.—Observations on the Geology and Zoology of Abyssinnia, 1870.
Boyne, W.—Tokens issued in the Seventeenth Century in England, Wales and Ireland, 1858.
Brahmâvadhuta Shri Sukhananda Natha—Sabdhartha Chintamani: Sanskrit Lexicon, 4 Vols.
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APPENDIX D.

CLASSIFIED List of Expenditure of the Government Museum during the year 1896–97.

	Actuals, 1896–97.	Revised estimate, 1896–97.
Salaries.	RS.	RS.
Superintendent	9,015	9,600
Exchange compensation allowance	1,175	1,283
Local allowance	..	2,400
Total ..	10,190	13,283
Permanent Establishment—Government Museum.		
First Assistant, second assistant, first, second and third taxidermists, herbarium-keeper, artist, writer, assistant writer, thirteen hamals, six gallery attendants, Superintendent's peon, door-keeper, chickledar and two peons —33 persons.	6,596	6,925
Temporary Establishment—Government Museum.		
Collecting taxidermist, three gardeners, three sweepers, five watchmen, water-pandal Brahmin, punkah-puller and chokra—15 persons	1,118	1,120

	Actuals, 1896-97.	Revised Estimate, 1896-97.
Permanent Establishment—Connemara Public Library.	RS.	RS.
Sub-Librarian, three attendants and two peons—6 persons.	1,860	1,858
Servant—1 person	42	44
Total Establishment ..	9,616	9,947
Allowance.		
Travelling allowance	1,139	800
Supplies and Services.		
Cost of specimens purchased on tour	528	800
Objects of interest and coins purchased at head-quarters.	684	600
Fittings, furniture, &c., for the collections	2,679	3,027
Cost of books and publications	2,690	1,800
Library	1,012	2,000
Lithographing plates	854	500
Ammunitions	38	15
Charges for feeding live animals	92	60
Expenses—		
Reading coins	8	10
Measurement	11	35
Total, Supplies and Services ..	8,596	8,847
Contingencies.		
Purchase of country articles each costing less than Rs. 50.	65	100
Subscription to newspapers	22	25
Cost of Europe stores (including freight)	56	42
Landing and shipping charges	10	11
Repairs to furniture	80	100
Gardening expenses	44	60
Wages and cooly	168	135
Cleaning charges	33	27
Supply of drinking-water	1	5
Scavenging expenses	43	45
Postage charges	174	180
Telegram charges	24	20
Rents, rates and taxes	3,843	3,843
Binding charges	366	300
Lighting charges	98	85
Petty carriage and cooly charges	154	156
Clothing of servants	..	..
Office expenses including such articles as gum-pots, rat-traps, mixture to prevent destruction of records, brooms, nails, boxes, fire-wood, umbrellas for peons, mats, chalk, food for cats	81	289
Total, Contingencies ..	5,262	5,423
Grand Total ..	34,803	38,300

APPENDIX E.

Account of the Opening of the New Museum Buildings.

The ceremony of formally declaring open the new Museum Buildings and the Connemara Public Library by His Excellency the Governor on Saturday evening, was robbed of some of its brightness by the dismally wet weather which has prevailed since Friday night, but in every other respect the proceedings were as successful as could be desired, and a very large and representative gathering of European and Native society in Madras graced the proceedings with their presence. The ceremony itself took place in the exceedingly handsome hall of the Connemara Public Library, but the entire block of new buildings was open to the large number of

visitors who took advantage of the opportunity of inspecting the galleries in which the Industrial, Ethnological, and Art exhibits of the Museum have already been arranged. His Excellency Sir Arthur Havelock, accompanied by Mr. H. A. Stuart, Private Secretary, and Captain B. Portal, Aide-de-Camp, arrived at 5 P.M., and was received at the Theatre entrance by Mr. Thurston, the Hon'ble Colonel D. McNeil Campbell, and Mr. Henry Irwin, C.I.E., and conducted through the building to the dais in the centre of the Library, the Governor's Band, which was stationed in the gallery over the entrance from the old Museum, playing the National Anthem. The hall had been very tastefully arranged for the accommodation of the guests, who completely filled one half of the building. On the dais were two handsomely framed photographs of the interior of the buildings and a stand on which a beautiful silver gilt key reposed on a lovely *kincob* cushion. On one side of the wards of the key was engraved a view of the new buildings, on the other were the words—

CONNEMARA PUBLIC LIBRARY AND MUSEUM.

New Buildings, Madras,
5th December 1896.

This key, as will be seen later on, was handed over by His Excellency the Governor to Mr. Thurston as the custodian of the buildings. Below the platform, in a prominent position, was a marble slab solidly framed in rosewood bearing the following inscription :—

CONNEMARA PUBLIC LIBRARY.

Opened by
His Excellency
Sir Arthur Elibank Havelock, K.C.M.G., G.C.I.E.,
5th December 1896.
Work commenced August 1890.
Completed September 1896.
Cost Rs. 5,75,000.
Edgar Thurston.
Superintendent and Principal Librarian.
Henry Irwin, C.I.E., Architect.
Patrick Mahony, Assistant Engineer.
T. Namberumal Chetty, Builder.

This slab will be fixed in a prominent place in the Connemara Public Library.

The proceedings were opened by Mr. Thurston, at His Excellency the Governor's request, making the following speech :—

"YOUR EXCELLENCY, LADIES AND GENTLEMEN,—I must confess at the outset that I am about to make a scientific experiment, and test the acoustic properties of the Library, which is intended for silence, not for platform oratory. The new buildings which have sprung up in the Museum grounds, and overshadowed the older and more modest building, for which I still have a great affection as being my first love, owe their existence to the initiative of Lord Connemara, and perpetuate his memory in Madras, as does the Mayo College that of his Viceroy-brother at Lahore. The buildings were commenced in 1890 from the designs, and under the direction, of the Consulting Architect to Government, our mutual friend, Mr. Irwin, who, I am glad to see present to-day. He informs me that the architectural style is Anglo-Italian, and that the tower, concerning the welfare of which I receive tender enquiries every day, will, when completed with its copper cupolas and lightning conductor, be 200 feet high, and be the highest object in Madras. The buildings have been erected entirely at Government expense, at an approximate cost of Rs. 5,75,000. In June 1894, as the new buildings were approaching completion, Government submitted the question of their future management to a committee composed of Mr. Monro, Mr. G. H. Stuart, Mr. Irwin, and myself. In passing orders on the Report of this Committee, Government agreed generally with its recommendation that what is now known by the official title of the Museum New Building should be utilised by transferring to it the Art and Ethnological collections of the Museum, which was suffering from a malady known as chronic congestion ; and that the Superintendent of the Museum should have charge of this building as well as the Connemara Public Library. Later, in October 1895, Government recorded its decision that the time had come to give effect to this recommendation, and I was called on to submit a scheme of distribution of the available space, which was approved, with the result that the Museum now boasts of an Anthropological research laboratory, which will develop later into a physical laboratory equipped with dynamometers, spirometers, etc., and a section devoted to illustration of the arts, designs, and textile fabrics of Southern India. And I have invited you,

ladies and gentlemen, to witness a little ceremony which His Excellency has kindly consented to perform before the new art, industrial and ethnological section is thrown open to-morrow to the general public. I must plead guilty to the merest shadow of jealousy, caused by the fact that the common expression of opinion of visitors, whom I personally conduct round the buildings, is not how nicely the exhibits are arranged, and how simple and effective the arrangements made for the convenience of readers, but how beautiful the internal decoration of the buildings is. But this slight twinge of jealousy of the occupant for the designer is more than compensated by the reflection that this decoration, especially the teak wood-carving and panelled ceiling of the library and the foyer of the Museum Building, is in itself a technical educator, and bears eloquent testimony to the skill of the native artisans trained under Mr. Irwin. On an occasion similar to this Sir W. Flower of the British Museum, to whom I owe the fortunate accident of a very happy private and official Indian life, said that a Museum depends for its success not on its building, not on its cases, and not on its exhibits, but on its Curator, and I do assure you, Your Excellency, that, so long as it is my privilege to be entrusted with the care, direction, and superintendence of the Madras Museum I will spare no effort to make it no mere show or source of evanescent amusement, but an institution for the diffusion of culture, which shall be of specific value from an educational and an economic aspect, and which shall enlighten the unenlightened and educate the uneducated. The Library has, I may mention in conclusion, been, as a matter of convenience, open to the public for several months. But I would now ask you, Sir, to declare both the Library and Museum new buildings formally open. And I would ask you, Sir, to accept, as a small memento of this occasion, these two photographs of the interior of the Library, which have been much admired in England by those familiar with kindred institutions."

His Excellency the Governor then said :—

"Ladies and Gentlemen,—Before I proceed to perform the ceremony committed to my charge, I wish, with your permission, to supplement with a few words the speech just delivered by Mr. Thurston. I promise not to detain you long, for I know the time is short, and before long the darkness will be descending upon us. The handsome pile of buildings in which we are assembled has been appropriated to three different and distinct purposes. The first, for providing larger and improved accommodation for the Madras Museum ; the second, is the provision of a home for the Victoria Technical Institute ; and the third, and most prominent, although I name it last, is the formation of the Connemara Public Library. Mr. Thurston has already fully explained to you the position of the Madras Museum with regard to these buildings. All that I need say is that the enthusiasm which Mr. Thurston knows how to put into his work, and the skilful management of his department which he has hitherto shown, give us confidence that the new institution is to have a wider expansion, and that it will be fitter to fulfil, even more successfully than in the past, the objects for which it was designed. The object of the Museum is, as you know, not only to amuse and instruct the people but also to give them practical instruction and to enlarge their minds and improve their taste. With regard to the second purpose of this building, namely, to provide a home for the Victoria Technical Institute, that institution is now undergoing development and I believe its library is housed under this roof. With regard to the Connemara Public Library, it is shown by the speech Lord Connemara delivered on the 22nd March 1890, that the object was to provide a free public library open to all classes and all nationalities, to which it was hoped the people would come in numbers, not only to gain information and instruct themselves, but also to indulge in the delightful recreation of literature. Now let us think for a moment whether these objects are ready to be attained. I fear not completely. We have a magnificent hall, a splendid reading room and beautiful bookshelves ; but I regret to say the bookshelves are at present but poorly furnished. They contain a useful reference and scientific library which has been transferred from the old Museum Library ; also documents and other papers which have been presented by the Secretariat, but beyond this, I believe, the shelves are empty. Now the practical question before us, and one which I wish to put before you now is, how are we to fill these bookshelves ? I fear it is not likely that any large contribution of books will be collected in this country. It follows, therefore, that money must be spent to buy books. Where is this money to come from ? The Government has already in constructing this fine building spent a considerable sum of the tax-payers' money. There is also, I believe, a small annual grant given for the purchase of books, and I don't think it is reasonable to expect Government and the tax-payers to go further than this. It has been suggested to me that it is just possible that the University of Madras, out of the fine surplus which it has, might, if approached, be not unwilling to show its liberality by granting a contribution for the purpose of the Library. But even if it shows great liberality, I fear the sum so obtained would be altogether insufficient to meet our wants. I must, therefore, appeal to the generosity of the public of Madras. I have no doubt the name of Mr. Passmore Edwards is known to many of you. He was—for he died a short time ago—one of the greatest philanthropists of the present generation. He was a man possessed of large wealth, but he was willing to live a simple unpretentious life in order to have more money to spend on works of benevolence. One of the chief ways in which he showed his benevolence and munificence was by founding public free libraries in different parts of England. Now, gentlemen of Madras, I would suggest for your consideration the following of the excellent example of Mr. Passmore Edwards. Her Majesty the Queen, who always regards services done to her people as services done to herself, caused an offer of a title

to be made to Mr. Passmore Edwards, but, I believe, he declined it. Gentlemen, I confide this Library and its furnishing with books to the munificence of Madras. Now, ladies and gentlemen, with one word of compliment to the architect who designed and carried out this magnificent building and one word of compliment to the city of Madras as being the possessor of so handsome a monument, I proceed to perform the ceremony which I have been asked to undertake."

At this stage the Hon'ble Colonel D. McNeil Campbell handed His Excellency the key referred to above.

His Excellency then said :—

"LADIES AND GENTLEMEN,—I declare the Connemara Public Library and Museum New Buildings to be duly open, and in token I hand this key to Mr. Thurston, the Superintendent of the Museum, who is in charge of the buildings."

Mr. Thurston in receiving the key said :—

"YOUR EXCELLENCY,—I accept this key as an emblem of the safe-guard of the buildings over which I have control."

This closed the formal portion of the proceedings. His Excellency the Governor on descending from the platform stayed a while in the hall talking with some of the guests, when Mr. T. Numberumal Chetty was presented to him. A brief but excellent programme of music was played by the Governor's Band, while refreshments were served in the reading rooms at each end of the hall. The guests shortly after began to leave, and thus ended the first, and very successful, public function which has been held in this building.—*Madras Mail.*

ORDER—No. 553, Educational, dated 5th October 1897.

Dr. Bourne's report on the administration of the Museum is clear and full and records another year of satisfactory work done.

2. The fall in the number of visitors to the old museum buildings is due partly to the closing of the Museum on account of the dangerous condition of the tower and partly to the diversion caused by the opening of the new museum buildings during the latter part of the year. Visitors to both the sections of the Museum numbered 435,065, of whom 306,548 visited the natural history and archæological section, and 128,517 the art, industrial and ethnological section. Of the total number of visitors 44 per cent. were of the female sex. The success that has attended the opening of the Museum on Sundays is gratifying.

3. The further progress made in the anthropological survey of the tribes of South India is satisfactory. An indent for a set of anthropometric apparatus, stated to be necessary for the survey in paragraph 6 of the report, has been submitted for the sanction of the Secretary of State in G.O., No. 333, Educational, dated 14th June 1897.

4. The treatment recommended by the Indian Museum, Calcutta, for the destruction of the rhinoceros beetle, will be brought to the notice of the Revenue Department. The separate report on the condition of the herbarium will be awaited with interest. Dr. Bourne's examination of it will have valuable results.

5. The number of persons who visited the Connemara Public Library during the year was 10,880, and the number of books given out for reference was 7,663. It should have been reported what progress was made during the year in the printing of the Library catalogue, sanctioned in G.O., No. 113, Educational, dated 2nd March 1896.

6. The total expenditure on the maintenance of the Museum and the Connemara Public Library during the year was Rs. 34,803, which is nearly Rs. 3,500 less than the revised estimate. The decrease is mainly due to Mr. Thurston's being on furlough towards the close of the year and to the non-payment of his local allowance ; the Secretary of State's sanction for the payment being received after the close of the year.

7. The thanks of Government are due to the gentlemen named in the report for their liberal gifts of books and exhibits of interest to the Connemara Public Library and to the Museum, and also to Mr. Thurston for his efficient management.

(True Extract.)

G. S. FORBES,
Secretary to Government.

Administration Report of the Madras Government Museum for the year 1897-98, with the Review thereon.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper :—

From E. THURSTON, Esq., Superintendent, Government Museum, to the Secretary to Government, Educational Department, dated Madras, 11th July 1898, No. 465.

I have the honour to forward, for submission to His Excellency the Governor in Council, my report on the working of the Government Museum during 1897–98, and to request that I may be supplied with 160 copies for distribution to other museums, &c.

2. The report was due on the 10th instant, and the brief delay in its submission is due to difficulty in getting the proofs through the press.

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM FOR THE YEAR 1897–98.

I was absent on leave until 29th January, 1898, and am consequently only able to speak from personal experience of the working of the Museum during the last two months of the year. To Dr. A. G. Bourne, who officiated for me during my absence, my thanks are due for the loyal manner in which the work, more especially in the botanical and economic sections, was carried out on the lines arranged between us before my departure.

The Museum and Library, which were closed to the public on 7th March, 1897 on account of the dangerous condition of the tower and the necessity for its demolition, were re-opened on 15th May. A plan and estimate for constructing a carriage porch in place of the dismantled tower were approved.

2. VISITORS.—The total number of visitors to the Museum old building from 15th May, 1897 to 31st March, 1898 was 262,023, and to the new building 265,320.

The number of gosha women who visited the Museum on the days set apart for them (the first Saturday of each month from midday till 5 P.M.) was 2,109.

The greatest number of visitors on a single day was 47,260 to the old, and 46,795 to the new building, at the feast of Pongal (14th January).

The number of visitors on Sundays was 23,286 to the old, and 22,910 to the new building, giving averages of 506 and 498 per Sunday, respectively.

The proportion of those able to sign their names to that of those unable to do so was, as in the previous year, about 1 : 6 on week days and 1 : 3 on Sundays. This is satisfactory as showing that Sunday opening continues to appeal to the educated classes, who are prevented by business from visiting the Museum on week days.

3. LIGHTING OF BUILDINGS.—An estimate, amounting to Rs. 10,490, for providing an installation of gas for illuminating the lecture theatre and the Connemara public library was sanctioned for execution, when funds are available, in G.O., No. 240 W., dated 28th January, 1898.

4. LOCAL MUSEUMS.—In 1896 the Government of India referred the Proceedings of the Art Conference, Lahore, 1894, so far as they relate to the establishment of local museums and show-rooms, to the Government of Madras, which, in passing orders on the subject, * expressed its opinion that "the establishment of a number of local and provincial museums and show-rooms would entail on Government an expenditure, which, in the existing state of the finances, it is unable to perceive any prospect of meeting. Moreover, the difficulties in the

* G.O., No. 751, Educational, 17th December 1897.

way of the establishment and management of such museums are serious, and there are few, if any, places outside the Presidency town where they could be now organised so as to prove of real usefulness to any considerable section of the people. In the Presidency town, where workmen are in sufficient number and of sufficient intelligence to take advantage of such an institution, there is a local museum attached to the Madras Government Museum." Personally, I was very much opposed to the establishment of the proposed local museums and show-rooms, and my letter to Government, recording my views, is printed in Appendix F.

5. Arms and Armour.—In the preface to his "Description of Indian and Oriental Armour" (edition 1896), Lord Egerton of Tatton, referring to the collections belonging to the India Museum and the Tower, says that "neither collection is rich in Southern Indian arms, and it is a matter of regret that the Government of India, while professing to watch over the preservation of archæological remains, has neglected to take advantage of the opportunity of acquiring old weapons from the armouries at Tanjore and Madras, and allowed them to be broken up and the contents sold as old metal." In defence of the Government I would draw attention to the small but quite excellent collection of arms from the Tanjore armoury, which has for many years been deposited in the Madras Museum, and is now, with the collection of arms and armour which has recently been received from the Arsenal, Fort St. George, one of the most conspicuous features of the Museum new building. The latter collection was transferred from the custody of the Military Department during the year under review, and arranged under the direction of Dr. Bourne in the corridor and western gallery on the ground floor of the new building. Included in the collection are a valuable and historically interesting series of arms captured by British troops in their wars against the Dutch, Burmese, Chinese, Tippoo Sultan, &c., of arms used by the British troops in the days of the East India Company, and the wooden cage in which Captain Anstruther was confined during the China War.

6. Anthropology.—The following apparatus was acquired by purchase for use in the Anthropological Laboratory from the Cambridge Scientific Instrument Company:—

Estimating divisions of a line.
Appreciation of colours.
Keenness of eyesight.
Appreciation of difference in musical pitch.
Hearing highest audible note.
Reaction time, hearing and sight.
Appreciation of weight.
Spirometer.
Hand dynamometer.

With this apparatus a series of records of Europeans was commenced, which will be useful for the purposes of comparison when I take in hand the systematic investigation of the educated Native community, which should prove of great interest.

Bulletin Vol. II, No. 1, dealing with the Badagas and Irulas of the Nilgiris, the Paniyans of Malabar, a Chinese-Tamil cross, &c., and giving a summary of the results of my work up to date, was issued during the year. In connection with the next Bulletin a large number of Eurasians were investigated by me; and, as a standard of physique for military purposes, physical records of a number of sepoys of the 28th Madras Infantry were obtained. These men entered heartily into the spirit of anthropometric research, which they termed Museum gymnastic sports. The investigation of the Sheik, Pathān, and Saiyad Muhammadans of the City of Madras was continued.

A large number of lantern-slides of types of Native tribes and classes, which will be valuable both for lecture purposes and for exhibition in compact form, were added to the photographic collection. Some of my negatives and half-tone cuts were sent on loan to England for illustration of a forthcoming work on Ethnology.

To the anthropomorphic series were added skulls and photographs of the Orang-utan, and the pelvis of an ape showing the bony ischial tuberosities flattened for the reception of the ischial callosities.

7. Archæology.—To Dr. E. Hultzsch, Government Epigraphist, the Museum was indebted for the receipt of four stone slabs, with rude sculptures and Tamil inscriptions, found at the village of Kîl-Muttugûr, in the Gudiyâtam taluk of the North Arcot district. "The most archaic of the three inscriptions records a gift of land during the reign of Narasimha-varman. Below it are figured, in bas-relief, an elephant and a goose. As the elephant appears at the top of three inscriptions of the Western Ganga dynasty, which have been published by Mr. Kittel (Indian Ant., Vol. VI, p. 101), and as the goose is said to have been the device of the banner of the mythical Ganga king Konkani (South Indian Inscript., Vol. II, p. 387, note 5), it may be assumed with some probability that Narasimha-varman belonged to the western Gangas. Of the remaining stones, two are dated in the time of the Chôla King Parântaka I, who ruled from about A.D. 900 to 940. The first of them refers to the death of a warrior, who was killed during a cattle-raid, which was undertaken by a western Ganga king. The second marks the spot at which a tiger had been killed by an inhabitant of Mukkuttûr, the modern Muttugûr. The fourth stone records the death of a warrior during a cattle-raid in the time of king Narasimha-varman."

A small collection of earthen pots, iron tools, and weapons was received from Mr. F. Fawcett, Superintendent of Police, Malabar, who writes concerning them: "The pots and iron tools and weapons were found at Kadakâmbalam, a "garden" about four miles from Calicut. There appears to have been a circle of stones about 27 feet in diameter, and in the centre of this circle was a stone cist, made of slabs, in which the pots, &c., were found. The cist was filled with earth, and the vessels, &c., were found near the bottom. Two pots were in the south-east corner. Besides those sent to the Museum, there were several other pots more or less broken. Indeed, the diggers, joking among themselves, said some one must have kept a toddy (liquor) shop there. The remark indicates a total absence of reverence for the relics of the dead. For receptacle for the remains of the dead the cist seemed to be. There were in the various vessels a number of small pieces of bones, some of which appeared to have been charred."

From Dr. E. Hultzsch were received a very interesting set of metal bells, some bearing Telugu inscriptions, which were discovered in a rock-hewn chamber at Bezwâda in the Kistna district, together with copper-plates of the eastern Chalukyan kings Vishnuvardhana III and Bhíma I. The following copper-grants were also deposited in the Museum:—

A set of five copper Dibbida plates of Arjuna, of the Matsya family, Saka Samvat 1191.

A set of three copper plates, with broken seals, called Tottaramudi plates of Kátaya Véma, Saka Samvat 1333 (published in Epigraphia Indica, Vol. IV, No. 46), from Masulipatam in the Kistna district.

A set of seven copper plates with seal, called Konkuduru plates of Allaya-Dodda, Saka Samvat 1352, from the Gódávari district.

8. Botanical and Economic.—The greater portion of Dr. Bourne's work at head-quarters in these departments consisted in the direction of the re-arrangement of the economic collection in the old buildings, and in the examination of the herbarium, and incorporation therein of the collections received from Ootacamund towards the close of the last official year.

Writing to Government concerning the herbarium (*vide* G.O., Revenue, No. 990, 26th November, 1897), Dr. Bourne stated that "Mr. Lawson and Abboye Naidu (late herbarium keeper, Government Museum) having both died before I commenced the present investigation, without having placed on record any general notes with regard to the collections, I have had to depend on intrinsic evidence only for my information. I gather that at one time or another all the specimens passed through Mr. Lawson's hands, and that he only returned to Madras specimens of species of which he had ample material. I have now re-united the collections, and have thereby greatly strengthened the material in very many cases. I have, however, segregated, at any rate as a temporary measure, all specimens of species represented in Southern India from the other Indian and extra-Indian species. As this report has reference to the botanical survey of Southern India, I shall speak only of the South Indian species

The collection consists of specimens collected by Wight, W. Elliot, Drew, Cleghorn, Beddome, Bidie, and Lawson, and of specimens presented from the Herbaria of Kew, Calcutta, Poona, Peradeniya, C. B. Clarke, Gamble, Cameron, Bourdillon, and others. There are also a large number of specimens emanating from two or three sources, which I have up to now been unable to localise. The number of specimens added by Mr. Lawson, especially from the Nilgiris, is very great indeed. In addition to the sheets of dried plants, there is a collection of seeds and fruits formed by Mr. Lawson, which I have united with a similar collection made by Mr. Gamble, and transferred from the office of the Conservator of Forests, Central Circle, to the Museum. Mr. Lawson left a small collection of coloured drawings of plants, chiefly orchids and balsams, but no systematic collection of notes. There are, however, short but valuable notes in his hand-writing upon many of the sheets bearing the specimens themselves. His chief work is expressed in the arrangement of the Herbarium itself, the bringing together what he considered to be specimens of one and the same species, although described under various names. This determination of the synonomy is, of course, a very important factor of all Herbarium work; I only wish to point out that the position of a particular specimen in a particular cover may represent much labour.

"The List of the Plants of Southern India" which I have prepared, and which is, I fear, owing to my having had to expedite my report, not as free from errors as I could wish, shows —

(i) that a considerable number of species not hitherto recorded from Southern India, do occur;

(ii) that a very large number of species which have been recorded from Southern India, are not represented in the Herbarium.

Of the former group, only one or two appear to be new species and undescribed; of the latter, the great majority are gaps, several of which I have already filled as the result of my recent tours, while others will be easily filled by a good collector in the course of a series of tours in the Presidency.

The "List" referred to above, which has been printed and distributed, indicates the present state of our knowledge of the flora of Southern India, and will form a useful basis for further investigations in connection with the botanical survey.

Dr. Bourne made three tours during the year, viz., to the South Arcot district, the Palni, and the Shevaroy Hills. They were all undertaken with the view of filling gaps in the Herbarium, and continuing the botanical survey. On the Palni hills about 850 species, exclusive of *Cyperaceæ* and *Gramineæ*, were collected. The tour in the South Arcot district was undertaken in April, at the hottest and driest time of year, with the special object of examining the chief xerophilous plants (*i.e.*, plants which flourish when exposed to great heat and drought, and show a definite response in their structure to the conditions under which they live) in what promised to be a peculiarly suitable locality, and, owing to the prolonged drought, amidst unusually severe conditions. Tiruvanamalai and Chengam in the plains, and Melpet on the South Arcot hills, at an elevation of about 4,000 feet, were visited. A list of the plants collected is given in Appendix H.

The tour on the Shevaroy Hills extended only over eight days in October, and numerous specimens (*vide* Appendix G) were secured for the Herbarium, which previously contained very few specimens from these hills. Very little virgin forest remains, and one marked feature of the flora is the extent to which introduced plants are becoming naturalised all over the hills.

In 1896, at the request of Government, I was asked to institute an enquiry, in consultation with the Board of Revenue, as to the practicability of destroying prickly-pear (*Opuntia Dillenii*) by means of cochineal insects or other parasites. As an initial step, the Collectors of all districts in the Presidency had been asked to cause enquiry to be made as to whether any animal or vegetable parasite has been anywhere observed, or can be found, feeding upon prickly-pear in such a manner as to warrant a hope that it might be used as an agency for destroying the plants. Carrying the enquiry further, Dr. Bourne obtained from Ganjám a supply of the "wild" variety of cochineal insect (*Coccus cacti*, var. *Grana sylvestris*), with which a series of experiments were carried out. His report on the subject is reprinted in Appendix J.

In March, 1898, Dr. Bourne paid a visit to the Godávari deltas to investigate the cause of the sugar-cane disease prevalent there, and subsequently submitted a report thereon, which is reprinted in Appendix I.

Specimens of insects, which had made their appearance in the Gumsúr and Ichapúr taluks of the Ganjám district, were received from the Board of Revenue, and identified, at the Indian Museum, Calcutta, as *Hieroglyphus furcifer*, Sauss. Other insects, which had attacked the rice crop in the same district, were identified as *Hieroglyphus furcifer*, Sauss, and *Euprepocnemis bramina*, Sauss.

The President of the District Board, Tanjore, forwarded to the Museum specimens of a beetle (*Oryctes rhinoceros*), which was destroying the cocoanut trees on road-sides. The following remedy was recommended: "To catch, or kill the beetle with a small iron barbed spike put down the hole bored by it. The beetle may then be drawn out, or, still better, be left dead in the hole, as its corpse appears to deter other beetles from coming. As the beetles prefer a tree which has been already attacked, such trees should be examined daily. Any holes may be plugged with tufts of fibre dipped in weak carbolic acid. Trees destroyed beyond power of recovery should be cut down, and burnt. They should not be used for posts, etc., as the eggs and larvæ continue to develop, and one beetle may produce a thousand young. If the beetles are in large quantities, a fire may be burnt at night, as it attracts them, and they can be driven into it with branches."

Specimens of an insect destructive to the crop of *Cajanus indicus* at the Government Farm, Saidapet, were identified as a Cantharid beetle, probably *Mylabris pustulata*, Fabr. The District Forest Officer, Manantoddy, sent some larvæ, which were attacking the young teak trees. These were reared at the Museum, and identified as the common defoliator, *Alope ricini*, Fabr.

The Board of Revenue considering it desirable to maintain a permanent record of the movements of those fishes which go about in shoals, and are economically valuable, the Museum was consulted on the subject, and a list, giving the scientific, English, and Tamil names, with references to the illustrations in Day's "Fishes of India", of those fishes whose movements would be worth recording and observing, was prepared.

9. Industrial Monographs.—The monograph on the "Cotton Fabric Industry of Madras," referred to in the last report, was issued, and reproduced, with the original illustrations and coloured reproductions of the samples of imported piece-goods submitted with the monograph, in the Journal of Indian Art, July and October, 1897. In accordance with the wish of Government the preparation of a companion monograph on the woollen industry was taken in hand.

10. Mineral Gallery.—A sample of blue clay from the Wajra Karúr diamond mines was exhibited in a bracket case.

To Mr. J. H. B. Brougham the Museum was indebted for a small collection of minerals from the Nellore mica mines. The Collector of the Kistna district forwarded for examination an earthy substance, found in the Palnád taluk at Kopanúr and Ratsamapallipád, which seemed likely to serve as a distemper, and imparts an excellent red colour to bricks. It was identified as yellow ochre, which is of very common occurrence in all the lateritic tracts of Southern India.

11. Mollusca.—A right handed chank (*Turbinella rapa*) shell, *i.e.*, a shell with its spiral opening to the right, was acquired in the Madras bazaar for the small sum of Rs. 150. A shell of this nature, found off the coast of Ceylon at Jaffna in 1887, was sold for Rs. 700. Such a chank is said to have been sometimes priced at a lakh of rupees (Rs. 1,00,000); and, writing in 1813, Milburn says (Oriental Commerce) that a chank opening to the right hand is highly valued, and always sells for its weight in gold. Further, Baldæus, writing towards the close of the seventeenth century, narrates the legend that Garroude (Garuda) flew in all haste to Brahma, and brought to Krishna the chianko or kink-horn twisted to the right.

Specimens were presented by Mr. W. M. Daly of a fresh-water mollusc found by him in the Budra river, Mysore, and described by Mr. Edgar A. Smith as a new species under the name of *Mulleria Dalyi.*

12. Mammal and Bird Gallery.—The skeleton of the large tusker elephant was set up afresh. A series of sections of molar teeth of the elephant, demonstrating their structure, was purchased in Ceylon, and exhibited. Skeletons of the fore and hind feet of an elephant which died at the People's Park were prepared in such a manner as to show the position of the bones during life. A number of photographs and reproductions of photographs of South Indian mammals were framed and exhibited. The head of a black leopard or panther (*Felis pardus*) was stuffed. The skull of a Gaur (*Bos gaurus*), the "Bison" of Indian sportsmen, was mounted on a shield.

From the People's Park an albino Peacock was received. A live specimen of the large spotted eagle (*Aquila maculata*) was obtained in the City of Madras in July. A pair of red crested Pochards (*Branta rufina*) were obtained in the Madras market in February.

13. Fishes.—The following fishes, acquired in the Madras fish-market, were stuffed during the year:—

Carcharias acutus.
Anguilla bengalensis.
Muræsesox talabon.
Elops saurus.
Serranus lanceolatus.
,, boenack.
,, sonnerati.
,, sp.
Lutjanus lineolatus.
,, rivulatus.
,, sp.
Pristipoma furcatum.
Diagramma pictum.
Heniochus macrolepidotus.
Holacanthus annularis.
Scatophagus argus.
Upeneus indicus.
Lethrinus karua.
Chrysophrys sarba.
Scorpæna armata.
Pterois miles.
Teuthis oramin.
Acanthurus gahm.
Caranx sansun.
,, affinis.
,, melampygus.
Trachynotus baillonii.
,, ovatus.
Platax teira.
Stromateus niger.
Cybium kuhlii.
,, commersonii.
Elacate nigra.
Eeheneis naucrates.
Pseudoscarus rivulatus.
Ostracion turritus.
,, cornutus.

A skeleton of Rhinoptera javanica was prepared.

14. Live Animals.—The collection of live animals, exhibited in the front hall of the old building, continued to attract great attention, and was expanded. At the close of the year it consisted of the following:—

Birds.

Aquila maculata—large spotted eagle.
Gallus sonneratii—grey jungle fowl.
Galloperdix spadiceus—red spur-fowl.
Ortygornis ponticeriana—grey partridge.
Crocopus chlorigaster—southern green pigeon.
Domesticated pigeons, illustrating variation under domestication.
Turtur humilis—red turtle-dove.
,, risoria—common ring-dove.
Pterocles fasciatus—painted sand-grouse.
Munia malacca—black-headed munia.
Uroloncha malabarica—white-throated munia.
,, punctulata—spotted munia.
Sporæginthus amandava—Indian red munia.

Mammals.

Loris gracilis—slender loris.
Paradoxurus niger—Indian palm civet.
Gerbillus indicus—Indian antelope rat.

An attempt to keep alive in captivity the large brown flying squirrel (Pteromys oral) failed.

Fishes.

Barbus, sp.
Etroplus maculatus.
Rasbora daniconius.

Reptiles.

Chamæleon calcaratus.
Python molurus.
Gongylophis conicus—sand snake.
Eryx johnii—sand snake.
Zamenis mucosus—rat snake.
Dendrophis pictus—tree snake.
Tropidonotus stolatus.
,, piscator—fresh-water snake.
Helicops schistosus—fresh-water snake.
Vipera russellii—Russell's viper or daboia.
Dryophis mycterizans.
Echis carinata.

A complete slough of the skin of the Russell's viper, and framed specimens of the skin of this snake and the Python, illustrating their characters, were exhibited.

The following note relates to the dietary and skin-moulting of the snakes, which were confined in the climate to which they were naturally adapted :—

Python molurus ate 37 rats, 3 quails, and 21 squirrels. Shed its skin on April 6th, August 12th, November 21st and February 6th.

Gongylophis conicus ate 51 mice and 1 rat. Shed its skin on June 13th, September 23rd and December 24th.

Eryx johnii ate 4 squirrels, 28 rats, and 4 mice. Shed its skin on August 2nd, November 10th and March 17th.

Zamenis mucosus ate 103 green frogs. Shed its skin in every month except October and December.

Dendrophis pictus ate 104 green frogs. Shed its skin on May 13th, June 16th, July 21st, October 17th, December 26th, and March 22nd.

Tropidonotus stolatus ate 91 green frogs. Shed its skin on March 17th, September 17th, December 26th, and March 20th.

Dryophis mycterizans.—Two specimens died during the year. They were fed on mice and frogs.

Vipera russellii ate 35 rats and 14 squirrels. Shed its skin on October 17th and January 18th.

Tropidonotus piscator shed its skin on May 17th, June 11th, January 20th, and February 24th. Ate an abundance of green frogs.

Helicops schistosus shed its skin on June 10th, July 19th, August 2nd, August 21st, October 7th, and November 22nd. Ate an abundance of green frogs.

15. Connemara Public Library.—The library was open to the public during 10½ months. The number of books, etc., given out was 11,356 against 7,663 in 1896–97. The following is a comparative statement of applicants for books, and of the volumes given out for reference, during the last two years :—

Names of months.	1896-97.		1897-98.	
	Number of applicants for books.	Number of volumes given out.	Number of applicants for books.	Number of volumes given out.
April	No account kept.		Closed.	
May	358	451	302*	471
June	459	565	436	648
July	473	570	566	787
August	771	823	589	915
September	641	746	609	1,090
October	612	741	523	1,025
November	474	585	499	869
December	857	1,021	866	1,409
January	862	1,026	1,056	1,476
February	706	901	838	1,241
March	199†	234	998	1,425
Total ..	6,412	7,663	7,281	11,356

* The library was open 6 days only. † The library was open 15 days only.

From this statement it will be seen that there was, in 1897–98, an increase of 13·5 per cent. in the number of applicants for books, and of 48·2 per cent. in the number of volumes given out for reference.

In the annual report for 1896–97 reference to the printing of the subject-index catalogues was inadvertently omitted. Those issued up to the present time comprise the following:—

1. Anatomy; biology; natural history (animal); zoology.
2. Anthropology; folklore.
3. Archæology; architecture.
4. Arts and industries.
5. Botany; arboriculture; horticulture.
6. Dictionaries; encyclopædias; lexicons; gazetteers; guide-books; manuals.
7. Economic products and economic entomology.
8. Education; ethics; logic; metaphysics; philosophy; political economy.
9. Forestry and timbers.
10. Geography; physical geography; physiography.
11. Geology and Palæontology.
12. History; calendars of State papers; Master of the Rolls publications.
13. Mineralogy; metallurgy; petrology.
14. Natural philosophy (general); astronomy; dynamics; electricity and magnetism; heat and thermo-dynamics; light; mathematics; meteorology; sound.
15. Numismatics; medals; heraldry.
16. Philology and epigraphy.
17. Physiology.
18. Sport and games.
19. Travels and foreign countries; voyages.

The library folio copies of the catalogues (according to authors' names and subjects) were, after my return to duty, brought up to date, and so maintained.

The total number of standard works added to the library was 217, of which 178 were acquired by purchase and 39 presented (see Appendix D).

In Appendix C is given a statement showing the numbers of visitors in each month during each hour of the working day, from which it will be seen that the most popular hours for readers are in the afternoon hour from 2—5 P.M.

16. VALUABLE STOCK.—The requisite inventory of valuable stock was maintained, and duly checked. The collections were all in good order at the end of the year.

APPENDIX A.

Museum Old Buildings.

VISITORS from 15th May 1897 to 31st March 1898 on week days.

1897-98.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Sinhalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	..	..	..	..	..	..	..	..	..	..	..	..
May	208	423	155	1,450	20	..	17	33	..	..	14	2
June	304	563	193	2,429	21	..	16	34	2	4	17	..
July	516	696	292	2,658	8	..	25	19	..	3	18	12
August	1,656	460	232	1,512	9	..	30	27	3	1	19	11
September	2,018	642	256	1,445	3	..	14	44	..	..	31	6
October	1,555	622	223	1,730	9	..	21	21	..	..	34	6
November	1,789	666	211	1,580	31	..	20	31	..	..	27	2
December	3,187	770	281	2,150	40	16	63	76	..	..	64	8
January	2,996	998	376	3,894	18	6	21	33	..	..	23	1
February	1,799	491	572	1,519	7	..	27	20	..	..	23	53
March	1,514	580	183	1,444	8	..	20	34	..	..	28	5
Total ..	17,342	6,911	2,977	21,811	174	22	274	372	5	8	298	106

1897-98.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
April	..	..	..	..	..	..
May	2,322	6,272	8,594	5,350	3,244	8,594
June	3,586	12,951	16,537	9,838	6,699	16,537
July	4,047	13,306	17,353	10,125	7,228	17,353
August	3,960	8,340	12,300	7,949	4,351	12,300
September	4,459	6,904	11,363	7,423	3,940	11,363
October	4,221	12,170	16,391	10,370	6,021	16,391
November	4,357	10,945	15,302	9,490	5,812	15,302
December	6,655	14,058	20,713	13,605	7,108	20,713
January	8,366	82,973	91,339	41,364	49,975	91,339
February	4,511	9,815	14,326	9,396	4,930	14,326
March	3,816	10,703	14,519	8,837	5,682	14,519
Total ..	50,300	188,437	238,737	133,747	104,990	238,737

Museum New Buildings.

VISITORS from 15th May 1897 to 31st March 1898 on week days.

1897-98.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Sinhalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	..	..	..	..	..	..	..	..	..	..	..	..
May	49	563	185	909	39	..	19	51	2	..	37	..
June	115	1,033	234	1,526	48	4	12	57	13	7	37	7
July	140	1,060	365	1,834	80	13	34	103	16	14	109	14
August	1,172	530	181	1,331	9	2	21	12	4	7	21	3
September	1,459	566	184	1,736	..	..	6	8	..	..	10	..
October	1,342	511	189	1,913	7	1	7	15	..	..	7	2
November	1,474	725	161	1,844	8	1	28	11	..	..	7	1
December	2,865	742	161	1,896	3	..	39	30	..	1	36	2
January	3,375	1,424	242	2,296	4	..	6	50	..	..	33	..
February	1,786	530	370	1,565	6	..	53	45	..	..	36	..
March	1,595	546	156	1,267	4	..	33	42	..	..	13	3
Total ..	15,372	8,230	2,428	18,117	208	21	258	424	35	29	346	32

1897-98.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
April	..	..	..	..	..	..
May	1,854	8,358	10,212	5,874	4,338	10,212
June	3,093	14,807	17,900	10,377	7,523	17,900
July	3,782	12,833	16,615	9,892	6,723	16,615
August	3,293	9,326	12,619	7,450	5,169	12,619
September	3,969	7,431	11,400	7,050	4,350	11,400
October	3,994	12,454	16,448	9,199	7,249	16,448
November	4,260	11,002	15,262	8,994	6,268	15,262
December	5,775	14,928	20,703	12,226	8,477	20,703
January	7,430	85,398	92,828	87,764	55,064	92,828
February	4,391	10,186	14,577	9,173	5,404	14,577
March	3,659	10,187	13,846	8,374	5.472	13,846
Total ..	45,500	196,910	242,410	126,373	116,037	242,410

Museum Old Buildings.

VISITORS from 15th May 1897 to 31st March 1898 on Sundays.

1897–98.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Sinhalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	..	..	..	..	..	..	..	..	..	..	..	..
May	16	38	30	224	..	..	1	2	..	..	3	..
June	30	80	14	355	..	..	2	5	..	..	..	..
July	41	62	31	550	..	..	2	..	..	..	7	..
August	338	48	43	214	2	..	2	7	..	..	2	..
September	355	61	27	242	..	..	..	4	..	..	5	..
October	447	93	40	326	2	..	..	..	..	..	3	..
November	338	117	43	234	..	..	4	16	..	..	4	..
December	430	134	129	279	4	..	3	6	..	..	8	..
January	658	178	106	435	6	5	3	3	..	..	11	5
February	474	116	71	343	2	2	..	11	..	..	6	1
March	429	111	45	250	..	..	2	8	..	..	8	..
Total ..	3,556	1,038	579	3,452	16	7	19	62	..	..	57	6

1897–98.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
April	..	..	..	..	..	..
May	314	606	920	590	330	920
June	486	1,355	1,841	1,147	694	1,841
July	693	1,168	1,861	1,251	610	1,861
August	656	780	1,436	1,049	387	1,436
September	694	762	1,456	1,066	390	1,456
October	911	1,682	2,593	1,780	813	2,593
November	756	1,478	2,234	1,658	576	2,234
December	993	1,546	2,539	1,833	706	2,539
January	1,410	2,554	3,964	2,780	1,184	3,964
February	1,026	1,459	2,485	1,906	579	2,485
March	858	1,104	1,957	1,464	493	1,957
Total ..	8,792	14,494	23,286	16,524	6,762	23,286

Museum New Buildings.

Visitors from 15th May 1897 to 31st March 1898 on Sundays.

1897-98.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Sinhalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	..	..	..	..	..	..	..	..	..	..	..	..
May	3	89	26	102	2	..	1	9	..	..	8	..
June	3	160	18	229	8	..	..	4	5	..	3	..
July	35	150	70	298	12	1	1	9	..	..	18	..
August	221	96	51	181	..	..	1	..	..	..	..	..
September	275	77	15	232	..	..	..	..	..	..	4	..
October	394	95	23	360	4	..	..	1	..	..	..	..
November	302	98	21	371	2	4	..	..	..	..	4	1
December	451	135	37	311	..	2	9	11	..	..	10	..
January	630	161	44	353	2	..	..	8	..	..	6	3
February	464	151	44	306	1	..	4	17	..	..	8	..
March	441	97	22	272	..	..	..	4	..	..	1	..
Total ..	3,269	1,309	371	3,015	31	7	16	63	5	..	62	4

1897-98.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
April	..	..	..	..	..	..
May	240	740	980	605	375	980
June	430	1,090	1,520	960	560	1,520
July	594	1,761	2,355	1,444	911	2,355
August	550	754	1,304	928	376	1,304
September	603	809	1,412	979	433	1,412
October	877	1,651	2,528	1,794	734	2,528
November	803	1,434	2,237	1,671	566	2,237
December	966	1,605	2,571	1,823	748	2,571
January	1,257	2,388	3,645	2,445	1,200	3,645
February	995	1,456	2,451	1,836	615	2,451
March	837	1,070	1,907	1,397	510	1,907
Total ..	8,152	14,758	22,910	15,882	7,028	22,910

APPENDIX B.

Donations, 1897-98.

Asiatic Society of Bengal—

Silver coins of the Bahmani dynasty of the Deccan found in the Angul district.
Firūz Shāh.
Ahmad Shāh II.
Gold coins of Kalinga year 31.

Barlow, Mr. G.—

White-eyed buzzard-eagle (Butastur teesa).
Crimson-breasted barbet (Xantholæma hæmacephala).
Bay-backed shrike (Lanius vittatus).

Baynes, Mr. A.R.—

Grey jungle-fowls (Gallus sonneratii).

Board of Revenue—
Nigella sativa, seed.

Brougham, Mr. J. H.—
Biotite (black mica).

Burma, Revenue Secretary—
Symbolical coins found in the Shwebo district, Burma.

Burnett, Mrs.—
Larva of silk moth.

Cameron, Mr. J.—
Section of stem of Agave.

Cochrane, Mrs.—
Butterflies.

Daly, Mr. W. M.—
Cœcilian (Ichthyophis glutinosus).
Russell's viper (Vipera Russellii).
Earthsnake (Silybura sp).
Mollusc (Mulleria Dalyi, Smith).

Dhanakoti Mudaliar, A., Rai Bahadur.—
Eggs of cobra.

Dorabjee Merwanjee Daboo, Mr.—
Head of gaur (Bos gaurus).
Head of spotted deer (Cervus axis).

Dorsey, Captain—
Head of gharial and young gharial (Gavialis gangeticus).

Falconer, Mr. P.—
Tasar Silk Moth (Antheræa mylitta).

Fawcett, Mr. F.—
Pottery, axes, &c., from Malabar.

Griffin, Mr. A. C.—
Stick insect.
Beetle (Lucanus, sp.).

Hultzsch, Dr. E.—
Three Tottaramudi plates of Kátaya Véma; Sáka samvat 1333.
Seven Konkuduru plates of Allaya-Dodda; Sáka samvat 1352.
Five Dibbida plates of Arjuna of the Matsya family; Sáka samvat 1191.
Antiquities from the inner cell of a rock-hewn chamber discovered in a Public Works Department quarry at Bezwáda; consisting of—

(*a*) Inscriptions on five copper-plates of the eastern Chalukyan King Vishnuvardhana III.
(*b*) Inscriptions on five copper-plates of the eastern Chalukyan King Bhima I.
(*c*) Two square seats (one broken).
(*d*) Five large metal bells, two of which bear Telugu inscriptions.
(*e*) Several pieces of small bells.

Jeswent Row, Mr. T. K.—
Bottle with writing inside.

MacGregor & Co., Messrs., Rangoon.—
Series of photographs of elephants in the timber yard of Messrs. MacGregor & Co.

Mahony, Mr. J.—
White-browed bulbul (Pycnonotus luteolus).
Indian oriole (Oriolus Kundoo).

McNair, Mr. J. W. A.—
Jelly-fish.
Fish (Arius, sp.).

Municipal Commission, Madras—

Magpie.	Crocodile.	White Peacock.
Cassowary.	Black Panther.	Drill.
Leopard.	Tapir.	Kangaroo.
Elephant.	Orang-utan.	Sambar.

Museum, Trivandram, Director—
Collection of butterflies from Travancore.

Natall, Mr. T.—
Jungle crow (Corvus macrorhynchus) with pseudo-albinism.

Nilgiri district, Collector—
Mimic bow and arrows used by the Todas at their ceremonies.

North Arcot district, Sub-Collector—
Sculptured and inscribed slabs of stone from Kil Muttugur near Virinchipuram.

Rajah M. Dinakar, Ramnad—
Fish (Stegostoma tigrinum).
Krait (Bungarus cœruleus).

Rajaratna Mudaliar, Mr. T. R.—
Embryo tortoises.

Royal Asiatic Society (Bombay Branch)—
Gadhia coins of mixed metal, copper and silver, found at Kaira, Guzerat.

Royal Botanical Gardens, Calcutta, Superintendent—
Herbarium specimens.

Sinclair, Miss—
Malabar spiny mouse (Platacanthomys lasiurus) skins.

South Canara district, Collector—
Hanging lamp of bell-metal.
Small copper stand for an idol.

Street, Commander H. A.—
Leaf insect.

Subramaniah, Mr. P.—
Human skeleton.

Tate, Mr. A. C.—
Eggs of jungle night-jar (Caprimulgus indicus).

Tinnevelly district, Collector—
Copper idol (Angali Eswari).

APPENDIX C.

STATEMENT showing the total number of visitors in every month during each hour of the day during the year 1897-98.

	7—8	8—9	9—10	10—11	11—12	12—1	1—2	2—3	3—4	4—5	5—6	Total.
April	..	..	..	..	..	..	..	..	..	..	..	..
May	53	49	58	40	29	39	29	36	59	57	39	488
June	63	92	69	78	75	68	51	91	102	79	39	807
July	52	83	81	98	126	69	76	124	115	105	18	947
August	48	80	76	75	81	78	82	121	123	116	30	910
September	56	67	77	85	105	72	84	82	129	93	27	877
October	59	60	75	71	80	63	88	81	90	93	17	777
November	51	53	47	95	93	69	83	85	96	98	18	788
December	63	131	98	125	112	140	156	184	220	179	35	1,443
January	75	120	131	158	146	147	189	224	197	203	25	1,615
February	57	106	115	126	123	122	110	121	163	163	21	1,227
March	82	112	125	133	124	135	100	168	176	174	48	1,377
Total ..	659	953	952	1,084	1,094	1,002	1,048	1,317	1,470	1,360	317	11,256

APPENDIX D.

LIST OF BOOKS ADDED TO THE LIBRARY.

Donations.

Alstine, Mrs. R. K. Van.—Charlotte Corday, 1890, 8vo.

Armstrong, R. A.—God and the Soul: an Essay towards Fundamental Religion, 1896, 8vo.

Bingham, C. T.—Hymenoptera, Vol. I. Wasps and Bees, *Illust.* [*Fauna of British India*] 1897, 8vo.

Crooke, W.—Tribes and Castes of the North-Western Provinces and Oudh. *Illust.*, 4 vols., 1896, 8vo.

Curwen, J. S.—Music at the Queen's Accession. Lecture, 1897, 8vo.

Dircks, H.—Perpetuum mobile: or Search for self-motive Power in the 17th, 18th, and 19th centuries. *Illust.*, 1861, 8vo., and second Series, 1870, 8vo.

Dubois, Abbé J. A.—Description of the Character, Manners, and Customs of the People of India, and of their Institutions, Religious and Civil. Edited by H. K. Beauchamp, 2 vols., 1897, 8vo.

Geddes, T. E.—La Resurreccion de Jesu-Christo, Nostro Señor, 1896, 8vo.
Grünwedel, A.—Buddhistische Kunst. *Illust.*, 1893, 8vo.
Do. Aus den Verhandlungen der Berliner Anthropologischen Gessellschaft.
Do. Drei Leptscha Texte mit Auszügen aus dem Padma-Than-zig und Glossar.
Do. Ein Kapitel des Ta-she-sung, 1896.
Do. Notizen aus den Reisen des Hrolf Vaughan Stevens in Malaka, &c.
Hampson, G. F.—Moths [*Fauna of British India*]. *Illust.*, Vol. IV, 1896, 8vo.
Hooker, J. D.—Flora of British India, Parts 23–24.
Hultzsch, E.—Miscellaneous South Indian Coins. Reprint, 1896.
Kielhorn, F.—Chikkulla Plates of Vikramendravarman II. Reprint.
Do. Ganjám Plates of Prithivivaramdeva. Reprint.
Do. Nandamapundi Grant of Rajaraja, dated in his 32nd year [A.D. 1053] Reprint.
King, L. W.—History and Coinage of Bārakzai Dynasty of Afghānistān. *Illust.*, Reprint, 1896, 8vo.
————and W. Vost,—Some Novelties in Moghal coins. *Illust*, Reprint, 1896, 8vo.
Krishnama Chariar, V.—A glorious Reign of Sixty Years, 1897, 4to.
Lilljeborg, W.—Zoologisca Studier, 1896, 4to.
Mayo, J. H.—Medals and Decorations of the British Army and Navy. *Illust.*, 2 vol., 1897, 8vo.
Moore, F.—Lepidoptera Indica, Parts 27, 28 and 30, 4to.
Muir, Sir W.—James Thomason, Lieutenant-Governor of North Western Provinces, 1843—1853, 1897, 8vo.
Oppert, G.—Reise nach Kulu im Himālaya. *Illust*, 4to.
Poole, S. L.—Catalogue of the Arabic Coins in the Khedivial Library at Cairo, 1897, 8vo.
Ram Brahma Sányál.—Hand-book of Management of Animals in Captivity in Lower Provinces of Bengal, 1892, 8vo.
Sanderson, F. W.—Electricity and Magnetism for Beginners. *Illust.*, 1897, 8vo.
Shrínivásácháryah, G. C. V.—Harischandra: the Martyr to Truth, 1897, 8vo.
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APPENDIX E.

CLASSIFIED List of Expenditure of the Government Museum during the year 1897–98.

	Actuals, 1897–98.	Revised estimate, 1897–98.
Salaries—	Rs.	Rs.
Superintendent	3,631	3,585
Exchange Compensation Allowance	332	358
Local allowance	213	213
Total ..	4,176	4,156

Classified List of Expenditure of the Government Museum during the year 1897-98—*cont.*

	Actuals, 1897-98.	Revised estimate, 1897-98.
	Rs.	Rs.
Permanent Establishment—Government Museum—		
First Assistant, second assistant, first, second and third taxidermists, herbarium-keeper, artist, writer, assistant writer, thirteen hamals, six gallery attendants, Superintendent's peon, door-keeper, chickledar and two peons—33 persons	7,094	7,108
Temporary Establishment—Government Museum—		
Collecting taxidermist, three gardeners, three sweepers, five watchmen, water-pandal Brahmin, punkah-puller and chokra—15 persons	1,070	1,077
Permanent Establishment—Connemara Public Library—		
Sub-librarian, three attendants and two peons—6 persons	2,145	2,150
Temporary Establishment—Connemara Public Library—		
Servant (sweeper)—1 person	41	47
Total Establishment ..	10,350	10,382
Allowance—		
Travelling allowance	817	900
Supplies and Services—		
Cost of specimens purchased on tour	324	900
Objects of interest and coins purchased at head-quarters	960	512
Fittings, furniture, &c., for the collections	3,151	3,000
Cost of books and publications	1,875	1,800
Library	2,004	2,000
Lithographing plates	..	..
Ammunitions	12	15
Charges for feeding live animals	137	60
Expenses—		
Reading coins	6	10
Measurement	111	35
Total, supplies and services ..	8,580	8,332
Contingencies—		
Purchase of country articles each costing less than Rs. 50	122	100
Subscription to newspapers	(4 annas)	25
Cost of Europe stores (including freight)	167	730
Landing and shipping charges	33	11
Repairs to furniture	96	100
Gardening expenses	60	60
Wages and cooly	210	135
Cleaning charges	67	27
Supply of drinking water	3	5
Scavenging expenses	46	45
Postage charges	178	180
Telegraph charges	6	20
Rents, rates and taxes	3,843	3,843
Binding charges	302	300
Packing charges	(6 annas)	..
Lighting charges	83	85
Petty carriages and cooly charges	235	156
Clothing of servants	88	100
Office expenses, including such articles as gum-pots, rat-traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vinegar, water-pots, ropes, match-boxes	16	35
Miscellaneous	3	..
Total, Contingencies ..	5,558	5,957
Grand Total ..	29,481	29,000

APPENDIX F.

Local Museums and Show-rooms.

With reference to G.O., No. 515, Educational, dated 24th August, 1896, I have the honour to express my views in connection with the suggestion relating to local museums and show-rooms referred to in paragraph 5 of the letter from the Government of India printed therewith.

2. The resolution of the Lahore Art Conference, 1894, with which I have to deal was to the effect that, "in all places at which there are distinct local industries, small museums, or more correctly show-rooms, should be established, in which type collections, illustrative of those industries, should be placed and kept up. That they should be under the supervision of the local authorities, but be inspected periodically by the Superintendent of the Provincial Museum, without whose approval no objects should be kept permanently as types."

3. I may, at the outset, express my decided opinion that no museum, however small, can flourish under amateur management, even if subject to the general control of a professional museum officer with power to make inspections, which must of necessity be few and far between.

4. In 1843, General Cullen proposed to form a small museum in each Collectorate under the care of the Collector, the Medical officer and Engineer, in which might be stored specimens of the various economic products of the districts. Eight years later, in 1851, the year of the Great Exhibition—the Honourable the Court of Directors expressed their approval of the establishment of a Central Museum at the Presidency and of local repositories in the interior. In 1855, museums were established at Bellary, Coimbatore, Cuddalore, Mangalore, Ootacamund and Rajahmundry, managed by a committee composed of the principal residents of the respective localities, and in connection with the Central Museum. In the Minutes of Consultation, No. 214, Public, dated 16th February 1855, it is noted that "it must be borne in mind that the Honourable Court, when according sanction to the partial establishment of such museums, desired that they should be considered chiefly as repositories for the collection and transmission to the Central Museum of the interesting objects afforded by their respective localities." I am unable from the records at my disposal to trace the brief career of these local museums, which, however, appear to have died a natural death from want of funds, skilled supervision, practical scope and other causes.

5. My object in referring to these historic details is to show that the organization of small local museums or show-rooms is no new idea so far as the Madras Presidency is concerned, but a scheme which has been put to the test and failed.

6. My policy in the direction of the Madras Museum, which has been carried out during the last twelve years, has been to organize it on a geographical basis and make it fulfil the requirements of a reference guide to the natural history, arts, industries, economic resources, archæology, &c., of Southern India. And, in a lecture printed with my annual report, 1895–96, I stated that "I have clearly mapped out in my head a scheme which will be put into action, now that increased space is placed at my disposal, for the development of a section, already existing in a rudimentary state, devoted to the illustration of the economic resources and industries, and the establishment of what I would call an economic and industrial museum." In reviewing the annual report, Government expressed its thorough approval of my "view that the technical and economic side of the museum should be extended and developed as far as is possible. District officers have it in their power to render the Superintendent material assistance in this direction." The scheme referred to above has since been put in action, and the arrangement of the art and industrial galleries of the museum new buildings is fast approaching completion so far as existing material is concerned. Much remains, however, to be added hereafter in order that the collections may constitute an exhaustive index to the arts and industries of Southern India; and I am strongly of opinion that the development of the Madras Museum, with the assistance of the district officers, who might do much for it in consultation with the Superintendent in acquiring typical samples of local arts and industries, &c., is of greater importance than the establishment of small local museums.

7. The question of the maintenance of indigenous arts and industries at a high standard of excellence is almost beyond the scope of the present letter, but it is one in which the art and industrial sections of the Madras Museum should be directly concerned, and I shall refer to it at length in my forthcoming monograph on cotton fabrics, which afford a melancholy example of industrial decline, the course of which no small museum or show-room at Madura, Tanjore, or other district centres could retard.

8. It seems to me that, at any rate in the Madras Presidency, the exhibition of local industries in the manner proposed by the Lahore Conference would serve no really useful purpose such as would justify the cost of their establishment and maintenance. To take, as an example, Tanjore mixed-metal ware. The exhibition of this ware in a small museum or show-room in Tanjore, where the industry is perfectly well-known, would do very little, if any good to those engaged in the industry, who should be able to protect their own interests without State aid. But I have often wondered that the Tanjore metal-workers, Trichinopoly pith-modellers, Vellore

brass-workers, and others, do not, as is done in some of the big cities of Northern India, have stalls on the railway platforms, especially in the cold weather, for the sale of their wares, mainly to itinerant "globe-trotters." The establishment of such stalls, under some organized arrangement by which only the sale of articles of recognized merit was permitted, would, it appears to me, be more practical and effective than museums or show-rooms, which might easily escape the attention of those for whom they are intended.

9. In recent years a Jubilee Museum has been erected at Bezwada, and an incident, which occurred in connection therewith, may be cited as an example of the danger with which the interests of the Madras Museum would be threatened by the establishment of peripheral museums. The building erected, it became necessary to make an attempt to justify its existence, and Government agreed that, as a temporary measure, some of the Amarávati marbles should be deposited there. I, however, pointed out that "it would be well that such of the marbles still remaining at Amarávati as are sufficiently well preserved for exhibition should be transferred directly to the Government Museum rather than, as a temporary measure, to the Bezwada Museum. The Amarávati marbles are already divided between two institutions—the British Museum and Madras Museum—and it would, I think, be a very great pity that they should be still further divided." The marbles were accordingly transferred to Madras. The incident is referred to as showing that the establishment of small district museums must inevitably end in a clashing of their interests with those of the Madras Museum, which is in every way undesirable.

(Signed) E. THURSTON.

APPENDIX G.

Plants collected on the Shevaroy Hills.

1. Ranunculaceæ—
   Clematis Gouriana, Roxb.
5. Menispermaceæ—
   Stephania rotunda, Lour.
   Cyclea peltata, Hf. & Tr.
13. Violaceæ—
   Viola Patrinii, D.C.
15. Pittosporeæ—
   Pittosporum nilghirense, W. & A.
16. Polygaleæ—
   Polygala persicariæfolia, D. C.
   „ chinensis, L.
18. Caryophylleæ—
   Stellaria media, L.
26. Malvaceæ—
   Sida carpinifolia, L.
   Decaschistia crotonifolia, W. & A.
   Hibiscus solandra, L'Her.
27. Sterculiaceæ—
   Waltheria indica, L.
29. Lineæ—
   Erythroxylon monogynum, Roxb.
32. Geraniaceæ—
   Oxalis corniculata, L.
   Impatiens diversifolia, Wall.
   „ balsamina, L.
33. Rutaceæ—
   Evodia Roxburghiana, Benth.
37. Meliaceæ—
   Cedrela Toona, Roxb.
41. Celastrineæ—
   Gymnosporia Heyneana, W. & A.
43. Ampelideæ—
   Vitis tomentosa, Heyne.
   „ araneosus, Dalz.
   „ pedata, Vahl.
44. Sapindaceæ—
   Allophyllus Cobbe, Bl.

50. Leguminosæ—
Crotalaria rubiginosa, Willd.
„ calycina, Schrank.
„ madurensis, Wight.
Indigofera trifoliata, L.
„ Wightii, Grah.
Tephrosia tinctoria, Pers.
Pycnospora hedysaroides, R. Br.
Pseudarthria viscida, W. & A.
Desmodium scalpe, D.C.
„ gyrans, D.C.
„ gyroides, D.C.
Vigna vexillata, Bth.
Dolichos falcatus, Klein.
Atylosia albicans, Bth.
„ rugosa, W. & A.
Dunbaria ferruginea, W. & A.
Rhynchosia filipes, Bth.
Flemingia strobilifera, R. Br.
„ Grahamiana, W. & A.
Sophora glauca, Lesch.
Cassia mimosoides, L.

54. Droseraceæ—
Drosera peltata, Sm.

65. Cucurbitaceæ—
Bryonia laciniosa, L.
Zehneria Hookeriana, Arn.

70. Umbelliferæ.
Bupleurum mucronatum, W. & A.
Pimpinella Heyneana, Wall.

74. Rubiaceæ.
Canthium umbellatum, Wight.
Spermacoce? stricta, Lf.

77. Compositæ.
Ageratum conyzoides, L.
Wedelia urticæfolia, D.C.
Gynura nitida, D.C.
Emilia sonchifolia, D.C.

80. Campanulaceæ.
Campanula fulgens, Wall.

88. Myrsineæ.
Mæsa indica, Wall.
Embelia Ribes, Burm.
„ viridiflora, Scheff.

92. Oleaceæ.
Jasminum Ritchiei, Clarke.
„ rigidum, Zenk.

95. Asclepiadeæ.
Cynanchum callialata, Ham.
Dregea volubilis, Benth.
Ceropegia tuberosa, Roxb.

100. Borragineæ.
Cynoglossum furcatum, Wall.
„ denticulatum, D.C.

101. Convolvulaceæ.
Lettsomia elliptica, Wight.
Evolvulus alsinoides, L.

102. Solanaceæ.
Nicandra physaloides, Gærtn.

103. Scrophularineæ.
Ilysanthes hyssopioides, Benth.
Bonnaya veronicæfolia, Spr.
Striga lutea, Lour.
Sopubia delphinifolia, Don.
Pedicularis zeylanica, Bth.

105. Lentibularieæ.
Utricularia? Wallichiana, Wight.
„ orbiculata, Wall.

109. Acanthaceæ—
Strobilanthes Kunthianus, T. Anders.
„ pulneyensis, Clarke.
Asystasia chelonoides, Nees.
Justicia diffusa, Willd.
„ procumbens, L.

112. Labiatæ—
Plectranthus incanus, Link.
Pogostemon rotundatus, Benth.
Leucas montana, Spr.
„ vestita, Benth.
„ aspera, Spr.

116. Amarantaceæ—
Amarantus spinosus, L.

119. Polygonaceæ—
Polygonum alatum, Ham. Ms.

123. Aristolochiaceæ—
Aristolochia indica, Linn.

124. Piperaceæ—
Piper Wightii, Mig.
Peperomia dindigulensis, Mig.

128. Laurineæ—
Litsæa zeylanica, C. and F. Nees.

135. Euphorbiaceæ—
Phyllanthus simplex, Retz.
„ Wightianus, Muell.
Breynia patens, Benth.
Antidesma menasu, Miquel.
Acalypha paniculata, Miquel.
„ fruticosa, Forsk.
Mallotus! albus, Muell.
„ philippinensis, Muell.
Tragia involucrata, L.
Sebastiania chamælea, Muell.

136. Urticaceæ—
Dorstenia indica, Wall.
Girardinia heterophylla, Decne.
Procais lævigata, Blume.
Boehmeria platyphylla, Don.
Pouzolzia auriculata, Wight.
„ caudata, Benn.
„ Bennettiana, Wight.
Debregeasia velutina, Gaud.

(Signed) A. G. BOURNE.

APPENDIX H.

PLANTS collected in the South Arcot District.

On the Tiruvanamalai hill there was one tiny little spring, forming a swamp of about a square yard in extent, where I collected Portulaca oleracea, L., Bergia ammannioides, Roxb., Osbeckia truncata, Arn. Ammannia baccifera, L., Ludwigia parviflora, Roxb. Hydrolea zeylanica, Vahl., Herpestis Monnieria, H.B.K., Lippia nodiflora, Rich., besides several grasses and sedges—a veritable little oasis in the desert.

Of weeds, &c., which are to be found almost everywhere, and apparently under even the most severe conditions, without any obvious special adaptation to their surroundings, were:—

Cocculus villosus, D.C. in shaded hedges.
Gynandropsis pentaphylla, D.C., following cultivation.
Cadaba indica, Lamk.
Ionidium suffruticosum, Ging.
Sida humilis, Wild.
„ rhombifolia, L.
„ carpinifolia, L.

Abutilon indicum, Don., on river banks at Chengam.
Cardiospermum Halicacabum, L.
Indigofera enneaphylla, L.
Tephrosia villosa, Pers.
Æschynomene indica, L., at the bottom of the tanks.
Cassia occidentalis, L.
„ Sophera, L.
„ auriculata, L.
„ Absus, L.
Trianthema monogyna, L., a somewhat succulent plant.
Mollugo Spergula, L.
Hemidesmus indicus, Br.
Calotropis gigantea, Br., survives owing to its poisonous character.
Leptadenia reticulata, W. & A.
Evolvulus alsinoides, L.
Lettsomia elliptica, Wight.
Ruellia prostrata, Lamk.
Justicia Betonica, L., on river bank at Chengam.
„ diffusa, Willd.
Ocimum sanctum, L.
Leucas aspera, Spreng.
Boerhaavia repens, L.
Ærua lanata, Juss.
Achyranthes aspera, L.
Polygonum barbatum, L.
Aristolochia indica, Retz., on the lower slopes.
Cassytha filiformis, L., parasitic.
Euphorbia pilulifera, L.
Phyllanthus reticulatus, Poir.
„ Niruri, L.
Acalypha indica, L., near wells and habitations.

The plants most abundantly present exhibited some special modifications, chiefly in the direction of economising a very limited water-supply, or of protection from goats and cattle, where everything more desirable had already been consumed. The leaves of the woody plants were small and few in number; the majority were thorny or spiny; a few were fleshy with a thick and tough epidermis, and a few resinous, and so retarding evaporation.

The following species were observed, and, unless otherwise stated, they occur in the plains:—

Argemone mexicana, L., very widely spread in inhabited districts; very prickly.
Capparis spinosa, Lamk., thorny; hills only.
„ divaricata, Lamk., thorny.
Flacourtia sepiaria, Roxb., thorny bush.
Tribulus terrestris, L., spiny.
Toddalia aculeata, Pers., spiny.
Atalantia monophylla, Corr., spiny; hills only.
Olax scandens, Roxb., prickly.
Zizyphus Jujuba, Lamk., prickly.
Vitis quadrangularis, Wall., fleshy.
Dodonæa viscosa, L., contains much resin.
Rhus mysorensis, Heyne., spiny.
Zornia diphylla, Pers., prickly.
Cæsalpinia Bonduc, Roxb., prickly.
Prosopis spicigera, L., prickly.
Dichrostachys cinerea, W. & A., spiny.
Acacia Sundra, D.C., spiny.
„ pennata, Willd., prickly.
Opuntia Dillenii, Haw., spiny and fleshy.
Alangium Lamarckii, Thw., spiny.
Randia uliginosa, D.C., spiny.
„ dumetorum, Lamk, spiny.
„ malabarica, Lamk., spiny.
Canthium parvifolium, Roxb., spiny.
Azima tetracantha, Lamk., spiny.
Carissa Carandas, L., spiny.
„ spinarum, A.D.C., spiny.
Sarcostemma intermedia, Dene., fleshy.
Solanum indicum, L., prickly.
„ xanthocarpum, Schrad., prickly.
Barleria buxifolia, L., prickly.
„ noctiflora, L., prickly.

Lepidagathis cristata, Willd., spiny ; one of the commonest weeds.
Gmelina asiatica, L., spiny.
Leonotis nepetæfolia, Br, spiny.
Celosia argentea, L., scarious.
Amaranthus spinosus, L., spiny.
Asparagus racemosus, Willd., spiny.

The trees, &c., all of which may have been planted in that particular locality, observed were :—

Anona squamosa, L., Chengam.
Cochlospermum Gossypium, D.C., lower slopes.
Shorea Talura, Roxb., lower slopes.
Thespesia populnea, Corr., road-sides.
Bombax malabaricum, D.C., lower slopes.
Feronia Elephantum, Corr., Tiruvanamalai.
Ægle Marmelos, Corr., Tiruvanamalai and the hills.
Ailanthus excelsa, Roxb., Chengam.
Protium caudatum, W. & A., lower slopes.
Melia Azadirachta, L.
Soymida febrifuga, Juss., lower slopes.
Chloroxylon Swietenia, D.C., Tiruvanamalai and the hills.
Sapindus trifoliatus, L., ,,
Mangifera indica, L., road-sides.
Odina Wodier, Roxb., ,,
Spondias mangifera, Willd., near the bungalow at Tiruvanamalai.
Abrus precatorius, L., widely spread.
Butea frondosa, Roxb., Tiruvanamalai and the hills.
Dalbergia latifolia, Roxb., ,,
Pterocarpus Marsupium, Roxb., ,,
Pongamia glabra, Vent., road-sides.
Peltophorum ferrugineum, Benth., road-sides.
Parkinsonia aculeata, L., road-sides.
Cassia Fistula, L., Tiruvanamalai and the hills
,, siamea, Lamk., Chengam.
Hardwickia binata, Roxb, Chengam.
Tamarindus indica, L., road-sides.
Albizzia Lebbek, Benth., Tiruvanamalai and the hills.
,, amara, Boiv., lower slopes.
Terminalia belerica, Roxb., the hills.
,, Chebula, Retz., ,,
,, Arjuna, Bedd., ,,
,, tomentosa, Bedd., ,,
Anogeissus latifolia, Wall., ,,
Eugenia Jambolana, Lamk., Tiruvanamalai and the hills.
Bassia longifolia, L., road-sides, etc.
,, latifolia, Roxb., ,,
Wrightia tinctoria, Br., Tiruvanamalai and the hills.
,, tomentosa, R. and S., ,,
Strychnos Nux-vomica, L., ,,
,, potatorum, L., ,,
Datura Stramonium, L., Chengam.
Dolichandrone falcata, Seem., Tiruvanamalai.
Tectona grandis, L., the hills.
Premna tomentosa, Willd., the hills.
Santalum album, L., Tiruvanamalai and the hills.
Phyllanthus Emblica, L., ,,
Bridelia retusa, Spreng., the hills.
Givotia rottleriformis, Griff., Tiruvanamalai.
Ficus bengalensis, L., road-sides.
,, religiosa, L., ,,
,, glomerata, Roxb., ,,
Phœnix sylvestris, Roxb., Tiruvanamalai and the hills.
Borassus flabellifer, L., road-sides.
Cocos nucifera, L., ,,

Bamboos are very plentiful on the hills, and most of them had just been in flower, and were dead. The Cyperaceæ and Gramineæ were not determined.

The following were also observed as occurring :—
Uvaria Narum, Wall., the hills.
Hugonia Mystax, L., Tiruvanamalai.
Erythroxylon monogynum, Roxb., Tiruvanamalai.

Clausena, sp., Tiruvanamalai.
Protium caudatum, W. and A., lower slopes.
Euonymus, sp., lower slopes.
Ventilago madraspatana, Gærtn., Tiruvanamalai.
Semecarpus Anacardium, L., the hills.
Bauhinia tomentosa, L., Tiruvanamalai and the hills.
„ variegata, L., Tiruvanamalai.
Acacia lencophlæa, Willd., Tiruvanamalai and the hills.
Gyrocarpus Jacquini, Roxb., the hills.
Casearia tomentosa, Roxb., Tiruvanamalai and the hills.
Cucumis trigonus, Roxb., Tiruvanamalai.
Heptapleurum stellatum, Gærtn., the hills.
Ixora parviflora, Vahl., Tiruvanamalai and the hills.
Morinda citrifolia, L., widely spread.
Rubia cordifolia, L., the hills.
Vernonia Roxburghii, Less., the hills.
Ageratum conyzoides, L., „
Embelia floribunda, Wall., „
Ardisia humilis, Vahl., „
Maba buxifolia, Pers., widely spread.
Diospyros montana, Roxb., Tiruvanamalai and the hills.
Jasminum, sp., the hills.
Thunbergia Hawtayneana, Wall., the hills.
Asystasia coromandeliana, Nees., „
Justicia glabra, Koen., the hills.
Priva leptostachya, Juss, the hills.
Vitex Negundo, L., Tiruvanamalai.
„ alata, Heyne, „
Anisomeles malabarica, Br., the hills.
Digera arvensis, Forsk., Tiruvanamalai and the hills.
Cassytha filiformis, L., Tiruvanamalai.
Loranthus longiflorus, var bicolor, Desr., Tiruvanamalai.
Tragia involucrata, L., Tiruvanamalai.
Gnetum scandens, Roxb., the hills.

(Signed) A. G. BOURNE.

APPENDIX I.

Sugar-cane Disease.

I arrived at Cocanada on Monday 21st, and spent the 22nd—25th in examining the sugar-cane. I returned by steamer this morning, and submit a report at once, as, if anything can be done, it should be done quickly. I have, in anticipation of the approval of Government, informed the Collector and some members of the Chamber of Commerce that the ryots should be induced by all possible means to root up the old stools, to burn all litter, to examine "tops" before planting, and to plant only on land where paddy was last year.

The cutting and crushing is now going on, and new planting will begin by the next new moon.

I think it would be desirable if Government were to call for a report as to the extent of the disease in all cane-growing districts. In such an enquiry it would, I think, be sufficient to ask whether any of the canes exhibited red spots or patches in their flesh. The ryots would have noticed such at the time of crushing. The damage done in the eastern delta at any rate is very great; from the forward crops which have been crushed, only half the usual yield of jaggery has been obtained, while from many still standing much less will be obtained.

Sugar-cane disease in the Gódávari Deltas and neighbourhood.

1. *Introduction.*—My attention was drawn to this matter by letters from the Collector of the district and from Messrs. Wilson & Co. of Madras.

Numbers of canes in certain localities were reported to be withering, and the evil was generally ascribed to the ravages of some insects.

A great variety of insects were sent to me, some perfectly harmless to the canes, others undoubtedly capable of doing damage. I do not propose to deal with these here, as the total damage done by them in the gardens I have examined is infinitesimal as compared with that done by a fungoid growth.

This growth produces all the symptoms characteristic of an attack by *Trichospharia sacchari*, Massee.

This is the fungus which has recently threatened to extinguish the sugar industry in Barbados. Different stages in its life history have been known as the "root fungus," and "rind fungus," respectively. I find both stages present, and great damage is being done; and, unless some measures to check the progress of the disease are adopted at once, matters will go from bad to worse.

Mr. Maxwell of Messrs. Wilson & Co. kindly secured me the services of several gumastas, and we visited a great number of "gardens"—as the sugar-cane plantations are there called—and interviewed the ryots. All the gardens we examined, among which were several reported to be quite healthy, showed much disease, and, now that I have pointed out what the symptoms really are, I gather from what I have been told that the disease is pretty widely spread along the whole coast, perhaps even to Ganjám, and that it is no new thing this year, but has been gradually coming on for some years. It is, however, only this year that the results have been sufficiently marked to cause it to have been brought to the notice of the Collector and Chamber of Commerce. It has evidently now taken a thorough hold of this district, such as is likely, in my opinion, to be infinitely worse next year, unless prompt and concerted measures are taken to check it.

2. *Symptoms.*—Canes but slightly affected, *i.e.*, only recently attacked, show no external signs of disease, but transverse sections show one or more bright red spots in one or more internodes, and, if these are followed up by longitudinal sections, they appear as red streaks which branch at the nodes. It is the fibro-vascular bundles which become coloured. Such slight attacks usually occur somewhere about the middle of the length of the cane. Where the disease is more advanced, the colouration extends also to the ground tissue, so that any section shows red patches. Subsequently the central portion of each red patch becomes opaque and white, and acquires a texture like that of a "woolly" radish. The tissue is, in fact, dead. Where the disease is still further advanced, portions first at the nodes, and later elsewhere, become black, and at this stage or before the leaves at the top wither, and the entire cane dies up. Some of the canes only were attacked when sufficiently young to give time for the disease to run its full course; others were attacked at later stages, and are yielding a certain amount of juice. Wherever the fungus has been growing in the cane for a sufficient length of time, small black, minutely velvetty spots are to be found among the sleeping roots, which look like warts on the nodes. These spots are groups of myriads of spores ready to be distributed by the wind.

Each garden which I examined showed the disease in all its stages; contained, in fact, plants which had been attacked at different periods.

3. *Methods adopted by the ryots which bear upon the spread of the disease.*—The only crop raised in rotation with sugar-cane by most of these ryots is paddy, and it appears to be the general custom to keep a particular plot as a sugar-cane garden for two years, to plant paddy in the third year, and then revert to sugar-cane. The sugar-cane crop of the first year is raised by planting "tops." Before the canes are passed through the crushing mill, the upper portion with the leaves is cut off. This, when trimmed, constitutes a "top." The "tops" are put together in a heap loosely covered up with leaves, and are planted out after about four or five weeks, so that they remain exposed to any spores which may be about in the air for a considerable time; during this some of them are doubtless attacked.

If sufficient "tops" are not available, any joint, *i.e.*, any internode with a couple of nodes showing buds, is used.

The land from which paddy has been recently harvested is ploughed, dry if possible, after soaking if necessary. The "tops" are laid out in rows, trampled in, and after sprouting has begun, furrows are made and irrigation commences. The second-year crop is raised by ratooning, *i.e.*, the stools of the previous crop are left in the ground, and new shoots grow from them. If a second-year crop has been very good, a third-year crop is sometimes attempted in the same way, but this does not appear to be the custom. Nor, apart altogether from this disease, do the ryots seem to expect a third-year crop to be a good one. The canes, they say, are likely to be thin and without much juice. This ratooning seems, under ordinary circumstances, to give very good results for one year. I may, however, at once point out that, when this disease is present, to attempt a second-year crop by this method is not only absolutely suicidal, but helps to spread the disease. Almost all the second-year crops now being cut are worse than the first-year ones, and the stools which are now being left to sprout are, I find, almost all infected, so that next year's crops grown from them are almost sure to be complete failures. I expect the shoots, infected as they will be from the very first, will soon wither.

In most gardens a certain number of canes are cut from day to day and sold for "chewing," and fetch about 2 pies each at the garden. The "chewing" season lasts from about January to March. When the bulk of the canes is ripe, a mill is erected in nearly every garden, the cutting commences in earnest, and the crushing goes on day and night on some gardens at any rate. About ten coolies and six pairs of buffaloes are employed at each mill. The leaves are given to the buffaloes, the "tops" are put aside as described above, the crushed stems are spread out upon the ground to dry, and, when dry, are used as fuel for the boiling which takes place on the spot. The ash and scum are used as manure, and any fuel unused is stacked. At all the mills I visited the procedure was identical.

4. *The way in which the disease is spread.*—This disease is actually caused by the fungus. Insects may damage some of the canes. The quality of the water, the use of unsuitable manure, or the exhaustion of the soil may cause a weak crop, but it must be clearly understood that, if spores of this fungus enter its tissues, the strongest and healthiest cane will be attacked. It is the spread of the spores of the fungus which we must endeavour to check, and, unless this is done, no other measures are likely to have any beneficial result.

The spores are extremely minute, and occur in inconceivable numbers in the little black patches on the surface, as well as inside the tissues of every diseased cane. They are capable of being dried up without losing their vitality, and, in this condition, are blown about by the wind. There is no doubt but that, in an infected area, spores are constantly settling everywhere in the form of impalpable dust particles. We have thus to deal with a most insidious foe. The greater portion of the surface of the cane is protected by a hard cuticle, but the spores easily effect an entry at the broken leaf bases, and the attack usually commences here. They also enter at any spot where the surface is injured, or at a hole made by a boring insect, or at a crack caused by exposure to sun or dry wind. Where the fungus exists in a stool or in a planted "top," it will assuredly grow into the young plant which shoots up thence. It is evident that some of the methods adopted by the ryot are calculated to spread the spores as widely as possible, and his method of planting, and more especially of raising a second crop where the disease is prevalent, are almost certain to ensure its recrudescence in an aggravated form.

5. *Measures which should be adopted.*—All land which has been under sugar-cane this year should be sown with paddy, all cane roots which have been left in the ground, wherever there has been any disease, being taken up and burnt.

All the crushed cane and old leaves, and other litter, should be burnt at once, and none stacked for future use. This can easily be done now while the boiling is going on. The ash will be quite harmless, and a most valuable manure.

The best plan to adopt where new gardens are being planted would be to secure "tops" from a perfectly healthy area, but this will not, I think, be feasible this year. The "tops" now at the gardens will have to be used, but they should be carefully examined by cutting across at each end, and any showing red spots in the flesh scrupulously rejected and burnt.

Next year it will be necessary to consider the feasibility of importing seed or taking other measures, but it is now too late to do so this year.

(Signed) A. G. BOURNE.

APPENDIX J.

Destruction of prickly-pear with the aid of the cochineal insect or other parasite.—With reference to G.O., Mis. No. 3767, Revenue, dated 21st September, 1896, I have the honour to submit some remarks upon the practicability of destroying prickly-pear by means of the cochineal insect or other parasites.

Experiments.—As soon as I had undertaken to investigate this matter, I selected a clump of the ordinary yellow-flowered prickly-pear (*Opuntia Dillenii*) growing in the museum grounds, and also procured from the Agri-horticultural Society's gardens plants of the red-flowered species (*O. cochinellifera*) and of three other species (*O. dezumana, O. monacantha, and O. spinosissima*).

I then examined the insects sent to the Superintendent of the Government Museum with the Proceedings of the Board of Revenue, Mis. No. 3844, dated 4th August 1896, and satisfied myself that these were cochineal insects of the so-called "wild" variety (*Coccus cacti, var-Grana sylvestris*). I procured a fresh supply of these from Ganjám, and, thanks to my instructions with regard to the packing having been most carefully carried out, and to the fact that it happened to be the most suitable time for the transfer, they reached me alive, and I was able to experiment with them. The time for the transfer was the most suitable, because the young insects were just ready to be hatched, and it is only just after hatching that they will migrate from one leaf to another, and so from one plant to another; they very soon fix themselves, and the females at any rate never move again. I might have had supplies month after month without securing this exact stage.

By carefully attaching portions of the leaves bearing pregnant mothers to my own plants, I got the young to migrate, and many fixed themselves on all my species of cactus.

The specimens sent were all attached to the red-flowered cactus, although some leaves of the yellow-flowered species were also packed in the basket.

The insects which attached themselves to my clump of yellow-flowered cactus exposed to the sun died within a week, and the rain removed all traces of them. Those on the same species which I had growing in a pot and shaded from the full sun, lived considerably longer, but the only ones which lived for any length of time—four months—were those on the red-flowered species (*O. cochinellifera*). They all ultimately died and disappeared, and, although I still watch the

plants, there is no trace of their re-appearance. Nor does our knowledge of the life history lead me to expect that there ever will be. I failed therefore to rear the cochineal insects in Madras, but had this been my object, knowing that it has been done before, I should have tried again, taking even greater precautions to protect the young insects. The present object is, however, to destroy the prickly-pear, and it is obvious that, if tried on a large scale, the experiment could not be accompanied by any special precautions for the protection of the insects.

2. *Historical resumé.*—The historical evidence weighs entirely against the practicability of destroying prickly-pear by the cochineal insect. The literature of the subject is very voluminous, and I propose to give here a very brief resumé only.

There seems to be no doubt but that the cochineal insects and the cactuses are all introductions, and the net result has been that the yellow-flowered cactus has thoroughly naturalised itself, while the cochineal insect has just managed to struggle on here and there.

There is evidence that cochineal insects were introduced five times between 1795 and 1883, with a view to the establishment of the cochineal industry in the country. In 1807 Government offered a reward of £2,000 for its successful introduction. It never became thoroughly established. It was, however, possible that, although a fine variety of the insect best for industrial purposes would not flourish, a wilder variety might become more or less naturalised. This has occurred to a small extent, and the idea of utilising this to destroy prickly-pear has been from time to time put forward.

From 1862 to 1868 repeated experiments appear to have been made on a large scale at Raichur, Atur, Palmanér, Madras, Bellary, Secunderabad, Pallávaram, and other places, in some cases with a certain measure of success. This partial success is in itself, I consider, a strong argument against the utility of repeating the experiments. They obviously ultimately failed, as the prickly-pear has not been eradicated in those localities, and were evidently after a time abandoned. It is, on the other hand, clear that, during the experiments, the insects were widely distributed, and the reports of success in some places show that it took a thorough hold only to die out in time, while the prickly-pear must soon have sprung up again.

3. *Remarks on other parasites.*—I have only up to now been able to find one other parasite attacking prickly-pear; this is a mycelial growth which is reported to have caused great damage to a prickly-pear hedge at a salt factory in the Nellore district. I secured specimens, and found the disease to be a mycelial growth which, by gradually indurating the epidermis and blocking the stomata, caused the whole substance of the leaf to rot. I preserved the specimens and watched their gradual decay, and sometime after this was complete and the leaves had dried up, they began to sprout and put forth healthy young leaves. This is an instance of the extraordinary vitality of the plant. I endeavoured, but unsuccessfully, to infect a clump of prickly-pear in the museum grounds with this disease, which leads me to think that unfavourable conditions in the soil or climate must have favoured its spread on the spot.

4. *Conclusion.*—I shall continue to observe and experiment in regard to this matter as opportunity offers. I am hoping to visit Ganjám on a botanical tour in December–January, and shall then examine the Coccus on the spot where alone it appears to have persisted in any quantity, but my present opinion is that it is impracticable to destroy prickly-pear in the manner suggested. Even if it appeared practicable, I should doubt the advisability of the attempt. The Coccus belongs to an extremely obnoxious group of insects—the plant bugs—and, supposing a wild variety were to spread all over the country and to have eaten up all the prickly-pear, I think it is possible—I cannot say probable—that it or some species, which might have spread with it, would turn to some other plant for food, and become an infinitely greater pest than the prickly-pear. This argument applies with great force to a mycelial growth or other parasite, which might prove less selective with regard to its food than the cochineal insect has.

(Signed) A. G. BOURNE.

ORDER—No. 555, Educational, dated 1st September 1898.

The report of the Superintendent on the administration of the Museum and the Connemara Public Library for the year 1897–98 is full and clear and calls for very few remarks. During the absence of Mr. Thurston on leave, the work of the museum was ably carried on by Dr. Bourne.

2. The number of visitors to the museum was 527,343, of whom 262,023 visited the natural history and archæological section and 265,320 the art, industrial and ethnological section. Of the total number of visitors, nearly 45 per cent. were of the female sex, while about 9 per cent. visited the museum on Sundays.

3. Further progress was made in the anthropological survey of the tribes of South India and, with the aid of the anthropometric apparatus obtained from the Cambridge Scientific Instrument Company, Mr. Thurston should be able to collect much valuable and interesting information on the subject.

4. It is noticed with satisfaction that the collections in the several sections of the museum were materially added to during the year.

5. The Connemara Public Library was visited by 7,281 persons for purposes of reading, and they consulted 11,356 volumes during the ten and-a-half months the library was open to the public.

6. The total expenditure on the maintenance of the Museum and the Connemara Public Library during the year was Rs. 29,481, which closely approximates to the revised estimates (Rs. 29,700).

7. The thanks of Government are due to the ladies and gentlemen and the institutions named in the report for their gifts of articles of interest and books to the Museum and the Connemara Public Library.

8. The number of copies of the report asked for by Mr. Thurston will be struck off and forwarded to him for distribution to other museums, &c.

(True Extract.)

H. TREMENHEERE,
Secretary to Government.

REPORT ON THE ADMINISTRATION

OF THE

GOVERNMENT MUSEUM AND CONNEMARA PUBLIC LIBRARY

FOR THE YEAR

1898-99.

84.196

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper:—

From EDGAR THURSTON, Esq., Superintendent, Government Museum, Madras, to the Secretary to Government, Local and Municipal Department, dated 23rd June 1899, No. 391.

I have the honour to forward, for submission to His Excellency the Governor in Council, my report on the working of the Government Museum during 1898–99, and to request that I may be supplied with 160 copies for distribution to other Museums, etc.

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM FOR THE YEAR 1898–99.

1. VISITORS.—The total number of visitors to the museum old building was 333,895 and to the new building 351,942—figures which indicate the popularity of the institution from the point of view of the sight-seer.

	Old building.	New building.
Smallest number of visitors on any day, not a holiday ..	85	85
Largest „ „ „ „ ..	8,591	9,865
Smallest number of visitors on Sunday	140	155
Largest „ „ „	1,321	1,283

The largest number of visitors on a single day was 58,044 to the old and 59,862 to the new building at the feast of Pongal. (The visitors to the Zoological Gardens, London, on the last bank-holiday were only 33,569.) The vast crowd of natives was thoroughly orderly, and no accident or damage to exhibits, or theft by professional thieves, occurred.

The number of gosha females who visited the museum on the days set apart for them was 3,627.

The rule relating to gosha visitors was slightly modified, the words "no males except infants in arms" being substituted for "no males of any age," and the word "females" being used in lieu of "ladies," as experience has taught me that many visit the museum on gosha day, who have no claim to the latter title.

2. GROUNDS.—The grounds were placed under the management of the Agri-Horticultural Society, which attended to the flower-beds, and to the welfare of the large number of trees planted to replace those which were sacrificed during the construction of the new buildings. The bald appearance of the grounds is fast disappearing owing to the rapid growth of plant life in a tropical climate. Garden seats were provided, and greater facilities than heretofore afforded for the supply of drinking-water and refreshments to visitors and readers in the library.

The new Taxidermist's quarters were completed and occupied. The old quarters were fitted up as a record room for Patent Office records, Parliamentary papers, official papers, &c. A room in the new quarters was set apart for use as a photographic dark-room.

3. LIGHTING.—An oil-gas generating apparatus and gasometer were set up in the grounds, and both theatre and library were provided with a gas installation, which has proved in every way satisfactory, and is far superior to, and safer than, open kerosine lamps.

4. ANTHROPOLOGY.—As bearing on the policy of the museum, I reproduce, in Appendix F, an article published in *Nature* (May 26, 1898) entitled "Anthropology in Madras," which explains in popular language the nature of the special work which is being carried out in this institution.

A long tour was made in connection with the anthropological survey, in the course of which the investigation of the Malaiālis of the Shevaroy hills was completed. Suspicious of my motives, they proved unwilling subjects, and the examination was carried out only with great difficulty. Though now living on the summit and slopes of the hills, and bearing a name which signifies inhabitants of the hills, the Malaiālis have no claim to be reckoned as a genuine hill-tribe, being Tamils who migrated from the plains—probably Conjeeveram—in comparatively recent times.

Advantage was taken of my visit to the Shevaroys to examine, on behalf of Government, Mr. R. Bruce Foote's private collection of "pre-historic" implements, with a view to the possible purchase thereof for the museum. The museum "pre-historic" collection was arranged by Mr. Foote in a gallery of the new building, which will be opened to the public during the ensuing year. Enriched by the addition of Mr. Foote's collection, the museum would possess the finest existing collection illustrative of Indian "pre-historic" times.

A protracted stay was made at Calicut on the Malabar Coast, where Eurasians, Cherumans, and Tiyans were examined anthropometrically. During a short stay at Ootacamund, an inquiry was carried out in connection with the physique of the elder boys at the Lawrence Asylum school, concerning whom I have recorded that "a good climate, with a mean annual temperature of 58°, good food, and physical training, have produced a set of lads well nourished and muscular, with good chests, shoulders, and body-weight. More eloquent than columns of figures, which appeal only to those accustomed to anthropometric methods, was examination of the lads themselves, as they stood stripped for investigation."

In continuation of my examination of the jungle tribes, short of stature and with high nasal index, round whom, as the existing remnant of a once more numerous race, much interest centres, the Kādirs of the Anaimalai hills were examined at the Forest depot, Mount Stuart. Not the least interesting characteristic of these hardy mountaineers is the practice, resorted to by both sexes, of chipping the incisor teeth to a sharp point—a practice which, though carried out in Africa and the Malay Archipelago, is, I believe, confined to the Kādirs alone so far as peninsular India is concerned. An ethnographic fact, and one which is significant, is that the detailed description of tree-climbing by means of pegs, as carried out by the Dyaks of Borneo, and as given by Wallace (Malay Archipelago) might have been written on the Anaimalai hills, and would apply equally well in every detail to the Kādirs.

Photographs, illustrating the tribes investigated, were taken, and collections purchased in illustration of personal adornment, &c.

To the anthropological laboratory were added printed instructions for measuring heads and skulls; skulls labelled to show the essential measurements, relation of brain to face in man and apes, &c.; skulls and ear (in spirit) of a young Orang-utan; photographs of Chimpanzee and an African Negro; and an articulated human skeleton.

From the Madras Medical College a very interesting skull of a Tamil, conspicuously dolichocephalic, and with marked prognathism, was received. To Mr. Foote the museum was indebted for a native skull, discovered 250 feet below the surface in the Ajampur gold mine, Mysore.

A course of demonstrations on practical anthropology was held in the museum theatre for the benefit of students in the University classes of history, which, as laid down by the University, includes a knowledge of ethnology. The course was well attended, the students availing themselves of the opportunity to supplement the theoretical knowledge acquired in the lecture-room, by witnessing the application of practical methods to the living subject, skull, etc.

A large number of data were collected, for future publication, with the apparatus referred to in my last report as having been purchased from the Cambridge Scientific Instrument Company. A series of candidates at a Civil Engineering examination

were brought to me for supplementary examination with sundry tests of "appreciation," "re-action," &c.; and it was distinctly interesting to note that the order, as recorded by me, corresponded approximately with the order in which they were placed by their college examiners.

Bulletin Volume II, No. 2, was issued, containing statistics relating to Eurasians of the poorer classes; a note on tattooing; a review of an article entitled "Malagaches-Nias-Dravidians," by M. Zaborowski; and a Toda petition to Government concerning the limitation of the number of buffaloes to be slaughtered at the kēdu (funeral rites). The Todas complaining that "the sacrifice of buffaloes at the kēdu is the most important of all the rites and ceremonies of the religion which the community of Todas, your petitioners, practise; and that, without its due and proper observance, they believe that they are prejudiced in the next world, while the reputation of the surviving relatives of the dead are lowered in the eyes of the community from the same cause."

The proof sheets of Bulletin Vol. II, No. 3, containing notes on the Kādirs and Malaiālis, syllabus of demonstrations, the Dravidian head, and a summary of the existing evidence on the complex Dravidian problem, were in an advanced stage at the close of the year.

The manuscript of a full and interesting report by Mr. F. Fawcett, of the Police department, on various tribes and castes of Malabar, was received for publication in the Bulletin series.

A magnificent photographic enlargement representing the seething crowd of natives in the tank at the Mahamakam festival, Kumbakónam, was acquired by purchase.

The collection of pre-historic implements lent to the museum by Mr. H. Gompertz was returned to him during the year.

5. Botanic and Economic Sections.—The appointment of a successor to Mr. M. A. Lawson, the late Government botanist, brought about certain changes in the working of the botanical section of the museum, in compliance with G.O., No. 102, dated 8th February 1899, to the effect that "the herbarium, being a necessary adjunct to the Botanist's work, will for the present be removed from the museum and placed in the Botanist's charge at Ootacamund. Mr. Barber will make arrangements to this end with the Superintendent of the Government Museum. The more important books, which formed the official botanical library of the late Mr. Lawson, are now in charge of the Superintendent, Government Museum, and should also be transferred to Mr. Barber." The museum herbarium-keeper, Mr. Rangachari, remains attached to the staff of the museum, and, in the absence of the herbarium, his appointment would be more appropriately entitled "Botanic and Economic Assistant." A detailed scheme has been worked out, and set in operation, for the development of the economic section and of the botanical index series, of which the latter will be arranged in the gallery over the mineral room, and should be of great value as an aid to the study of morphological and systematic botany by University students and others.

The herbarium-keeper spent several months on the Palnis in connection with the investigation of the flora of this mountain range, which was commenced by Dr. A. G. Bourne in 1897, and continued by him during the year under review.

A dado, composed of Malabar timbers from the Malabar Steam Saw Mill, Calicut, was set up on the stair-case leading to the economic gallery. The timbers thus exhibited are as follows:—

1. Tectona grandis (teak).
2. Dalbergia latifolia (rosewood).
3. Dysoxylum malabaricum (white cedar).
4. Cedrela Toona (red cedar).
5. Artocarpus hirsuta (aini).
6. Lagerstrœmia lanceolata (benteak).
7. Canarium strictum.
8. Hopea parviflora.
9. Terminalia tomentosa (Malabar walnut).
10. Xylia dolabriformis (iron-wood).

11. Terminalia paniculata.
12. Calophyllum longifolium (poon).
13. Pterocarpus Marsupium (Wynaad padauk).
14. Mangifera indica (mango).
15. Hardwickia pinnata (Malabar mahogany).
16. Vateria indica.
17. Artocarpus integrifolia (jack).
18. Adina cordifolia.
19. Diospyros Ebenum (ebony).
20. Grewia tiliæfolia (Malabar lancewood).
21. Michelia Champaca.
22. Bombax malabaricum.
23. Tetrameles nudiflora.

The museum was consulted in connection with an insect, which was causing considerable pecuniary loss by boring into planks for tea chests made of *Bombax Malabaricum* timber in a large open godown at Calicut. The insect was identified at the Indian Museum, Calcutta, as a species of *Bostrychus* new to the museum collection. As a possible remedial agent, soaking the plants in water, and exposing them to the sun, were recommended. Among other economic references may be mentioned an isopod crustacean, which produced considerable damage by eating the roots of coffee seedlings in the Wynaad.

From the Public Works Department were received specimens of a pelagic amphipod crustacean, which was present on the surface of the Cooum near its entry into the sea, and, by its decomposition in millions, added to the smell emanating from that unsavoury river.

At Calicut specimens were obtained of the timber of *Mesua ferrea* (iron-wood), serving as piles for the pier, which had been extensively bored by a species of *Pholas*.

6. Art Section.—At the Exhibition held under the auspices of the resuscitated Madras Fine Arts Society, I acquired on behalf of the museum a series of ivory carvings of animals executed by an artisan employed by the Elaya Raja of Travancore; repoussé aluminium plaques made at the Madras School of Arts; carved teapoy made at the Madura Technical Institute; an oil-painting entitled "The gong-beater" by Mr. C. Krishna Raja, which secured the prize for the best picture by a native of Southern India. It is to be hoped that the series of exhibitions, in which the museum is directly interested, will be continued annually, and that they will be the means of developing, and promoting an interest in the indigenous arts and handicrafts of the Madras Presidency.

7. Archæology.—A number of stone carvings, which have been for many years exhibited in the museum grounds round the main entrance, were set up in the archæological section.

I was interviewed by the Prince priest of Siam in connection with the proposed transfer of a relic from the Buddhist stupa of Bhattiprôlu in the Kistna district, which, it was suggested by a correspondent to the *London Times*, should be rescued from the "obscurity of the Madras Museum." The relic, which is coveted, is a fragment of bone contained within a crystal casket, which was itself contained in a large stone casket, whereon is inscribed the legend: "By the father of Kura, the mother of Kura and Siva (has been ordered) the preparation of a casket, and (has been given) a box of crystal in order to deposit some relics of Budha" (Translation, Bühler *Epigraphia Indica*).

Correspondence took place with reference to a suggestion from Dr. J. Burgess that the collection of Gandhâra Græco-Bactrian sculptures, received by the Madras Museum some years ago, should be reproduced by photography for publication. Several of the sculptures were successfully reproduced by the Madras Survey department, and the photographs sent to Dr. Burgess for approval before the work is finally carried out. The sculptures under reference form a fitting companion to those from the Amarávati stupa in the Kistna district, which are among the most valuable of the possessions of the museum.

A series of nineteen copper plates, bearing the names and dates of various Sētupati and other native princes, which had appeared from time to time in suits on the file of the several courts in the Madura district, were received from the District Judge, and added to the existing collection.

A stone figure of Krishnaswāmi of unusual type, found in the Tiruvannámalai taluk of the South Arcot district, was acquired under the Treasure Trove Act.

8. Geological Section.—The collection of fossil Ammonoidea, made by Dr. Warth in the Trichinopoly district, which was sent to Professor Waagen, Vienna, in 1893, was returned, and exhibited. A report thereon by Dr. F. Kossmat, with description of new species, has been published in a monograph entitled "Untersuchungen über die südindische Kreideformation." The remainder of the cretaceous material (nautiloidea, gastropoda, bivalves, brachiopoda, and corals) is retained by Dr. Waagen pending the publication of the monograph relating thereto. Among other additions may be mentioned :—

(*a*) An interesting type-series of hand specimens of rocks from Coorg, named according to modern nomenclature, and received from Mr. T. H. Holland of the Geological Survey of India.

(*b*) Polished blocks of charnockite rock from the Nilgiris.

(*c*) Polished block of red granite from Dammur, Bellary district.

(*d*) Coal in the seam from the Singareni coal-fields.

(*e*) Charts illustrating rainfall distribution, cyclonic storms, and the physical configuration of India.

9. Numismatics.—The most important additions to the collection of coins were—

(*a*) A small collection of coins of the Moghul Emperors from the Bellary district.

(*b*) Eleven silver denarii of Tiberius, found in a hill at Salibundam village in the Chicacole taluk of the Ganjám district.

(*c*) Fifteen gold coins from Ganjám, identified by the Philological Secretary, Asiatic Society of Bengal, as being issues of the Kings Jajalladeva (circa 1090–1120 A.D.), Ratnadeva (circa 1120–1140), and Prithvideva (circa 1140–1170), of the Kalacuri dynasty of Mahakosala.

Three copper Indo-French coins of fleur-de-lis type, with dates 1769, 1781, and 1790, were received in exchange.

Two large coin-cases, enclosed in burglar-proof iron safes, were purchased, and the groups of coins already published in museum catalogues, and certain miscellaneous groups of unpublished coins, transferred thereto.

A commencement was made with the arrangement of the large series of Moghul coins, the majority of which have been received from time to time from the Asiatic Society of Bengal.

Progress was made with the preparation of the manuscript of the catalogue of the rich collection of South Indian coins, the publication of which, in amplification of the information contained in Sir Walter Elliot's "Coins of Southern India," and liberally illustrated, is a very great desideratum. A conference was held, in connection therewith, with Messrs. T. M. Rangachari and T. Desika Chari, who themselves possess a good private collection of South Indian coins, and the task of cataloguing the coins of the Cholas, Pandyans, Sētupatis, and Vijayanagar dynasty was entrusted to them. The issue of my "Catalogue of Mysore Coins," for which there is a constant demand from amateur collectors, is exhausted, and was re-written, with additions, for incorporation in the new catalogue.

10. Industrial Monograph.—As a companion to my "Monograph on the Cotton Fabric Industry," 1897, a monograph on the woollen fabric industry of the Madras Presidency was, under instructions from the Government of India, prepared, and issued. This industry resolves itself into two main heads—(*a*) carpets and rugs, (*b*) blankets (kamblis). Of these, the extent of the industry, and fame of the former are on the decline ; the latter are still extensively manufactured in many districts, and have not suffered to the same extent as cotton fabrics from the competition of cheap imported articles. Of the woollen carpet industry there are at the present day, as in the past, four chief centres—Ellore in the Gódávari district; Masulipatam

in the Kistna district; Walajanagar in the North Arcot district; and Ayyampéttai in the Tanjore district; and, of these, the most important is Ellore. The demand for Ellore carpets seems to be fairly well maintained, as a Madras firm (Messrs. Arbuthnot & Co.) still supplies them annually to the value of about 1½ lakhs of rupees.

Complete sets of impressions of the beautiful wooden blocks in the industrial section of the museum, which were formerly used in printing cotton fabrics, and are now laid aside in favour of the predominant imported piece-goods, were, at their request, prepared for business men interested in the cotton fabric industry in Europe, and visiting India in search, *inter alia*, of designs suitable for the capricious requirements of the Indian market.

11. Sea Fisheries Investigation.—As the result of correspondence between the Board of Revenue and myself on the subject of fish-curing statistics, the Board resolved that "the fish-curing statistics, as at present collected, having proved themselves to be valueless either scientifically or commercially, a stop should be put to their record, and a less ambitious, but more accurate system substituted on the lines suggested by the Superintendent, Government Museum". My views as to the lines on which the investigation should be carried out are expressed in the letter reproduced in appendix G . . The suggestion contained therein that, with a view to a comparison being made of the fishes caught off the east and west coasts, a census should be held, at each fish-curing yard, during two entire weeks of the year—one before, the other towards the close of the south-west monsoon—was adopted. The results of the March census were being tabulated at the close of the official year. I propose to visit personally, during the ensuing year, some of the more important fish-curing yards on both east and west coasts, with a view to collecting data in amplification of the reports which are received monthly from the Inspectors of the yards.

An application was received from the German Sea-fisheries Board (See-fischerei-verein) for the loan of native divers from Tuticorin in connection with investigation of the pearl oysters off the coast of German East Africa. A number of divers expressed their willingness to proceed thither, on certain conditions as to remuneration, hours of work, depth of water and dietary, which were communicated to the Board.

12. Natural (History Animal).—A number of birds and fishes shot in the environs of Madras city or obtained in the local market were, as usual, added to replace old, faded, and worn out specimens.

As an addition to the existing collection of stuffed mammals, which, of necessity, lack the artistic treatment displayed in those exhibited at the National Museum at South Kensington, skin specimens are being exhibited as the opportunity arises. Such specimens (supplemented by skulls), though less attractive to the general mass of visitors, are, for the purpose of identification by those interested in natural history, really more useful than grotesquely stuffed specimens, inasmuch as the characters of the entire surface (dorsal, lateral, and ventral) are displayed at a glance. The same remark applies to the exhibited collection of birds. The casual visitor, or one in search of elementary knowledge, is perfectly satisfied if he can see birds which are familiar to him, or which he wishes to identify, set up on labelled wooden supports or perches, regardless of their habits, arboreal, swimming, wading, &c. But the occasional critic notices that, in the absence of an organised band of collectors and shikáris distributed throughout the Presidency, and of material received from amateur collectors and volunteer museum helpers, the general effect is perforce marred by the placing of recent specimens side by side with those collected many years ago in the early history of the museum, and difficult to replace.

Among the additions to this section during the year, the following may be noted:—

Mammalia.

Skeleton of Loris gracilis.
,, of Sciurus palmarum—the palm squirrel.
Skull of Pteromys oral—the large brown flying squirrel, from Malabar.
Skin of Viverricula malaccensis—the small Indian civet.
,, of Felis bengalensis—the leopard cat, from the Nilgiris.
,, of Platacanthomys lasiurus—the Malabar spiny mouse, from the Wynaad.

Skull of Cervulus muntjac—the rib-faced or barking deer, from the Nilgiris.

Clavicles (collar-bones) of man compared with the rudimentary clavicles in the Felidæ (tiger, panther, jungle cat, and domestic cat).

A series of specimens illustrating the mechanism of the retractile claws of the Felidæ (illustrated by the panther).

Skeletons of the feet of an elephant, showing the true position of the bones during life.

A series of specimens illustrating the structure of the molar teeth of the elephant.

A series of framed labels, descriptive of the salient characters of the various orders of mammalia, and process reproductions of photographs of South Indian Mammals, with brief descriptions thereof, taken from the publication "All about animals" were exhibited, and, I was glad to notice, widely studied by visitors.

Aves.

Skin of an albino peacock.

Golden-backed woodpecker (Brachypternus aurantius) showing the long protrusible tongue.

Crimson-breasted barbet, or coppersmith (*Xantholæma hæmatocephala*) in a hole bored in the trunk of a Casuarina tree. Skulls and eggs of the Emu and Cassowary, and eggs of the Ostrich and Emu (added to the index collection).

Reptilia.

Section of the skeleton of Chelone mydas (turtle), showing the internal osteology.

Sections of the skeletons of pond tortoises, showing the position of the cervical (neck) vertebræ when the head is retracted within, and projected outside the carapace.

Carapaces of pond tortoises, showing the bony plates constituting a bony dermal armour.

Chamæleon with its long projectile tongue, adapted for catching insects at long range, protruded.

Skull of a gharial (*Gavialis gangeticus*).

Skin of Varanus bengalensis (lizard), showing the bony scales.

Keeled bony scutes of a crocodile.

A snake, Tryophis pulverulentus, was received from Sultan's Battery, Wynaad, 3,000—4,000 feet. This species is recorded by Boulenger (Faun. Brit. Ind.) from Ceylon and the Anaimalai hills, 2,000 feet.

Specimens were issued on loan, for the purpose of object lessons, to various elementary schools. At the Educational Conference, which was held in the museum theatre at Christmas, I read a short paper, illustrated by examples, on "the circulation of specimens to schools," in the hope that some interest in the study of natural history (animal, vegetable, and mineral), served up in pleasant form, might be aroused among those responsible for the education of the rising generation.

13. Live Animals.—At the close of the year the collection of live animals, which continues a source of great attraction, was composed of the following:—

Aves.

Aquila maculata—large-spotted eagle.
Coturnix communis—common or grey quail.
„ coromandelica—black-breasted or rain quail.
Perdicula asiatica—jungle bush quail.
Domesticated pigeons, illustrating variation under domestication.
Turtur humilis—red turtle-dove.
„ risoria—common ring-dove.
„ suratensis—spotted dove.
„ meena—rufous turtle dove.
Pterocles fasciatus—painted sand-grouse.
Munia malacca—black-headed munia.
Uroloncha malabarica—white-throated munia.
„ punctulata—spotted munia.

An attempt to keep in captivity the screech owl (*Strix flammea*) and kestrel (*Tinnunculus alaudarius*), failed.

Mammalia.

Loris gracilis—slender loris.
Gerbillus indicus—Indian antelope rat.

The loris, which is easily obtainable in the Madras market, feeds greedily on cockroaches. Being nocturnal in habits, it sleeps all day till 5 P.M., curled up in a bunch with its fellow-prisoners. It is very delicate in captivity, and the specimens have to be continually replaced.

Pisces.

Barbus, sp.
Rasbora daniconius.
Anabas scandens—climbing perch.

Reptilia.

Crocodilus palustris, juvenis.
Chamæleon calcaratus.
Python molurus.
Eryx johnii—sand snake.
Zamenis mucosus—rat snake.
Dendrophis—sp. incert.
Tropidonotus stolatus.
" piscator—fresh-water snake.
Atretium schistosum " "
Vipera russellii.
Trimeresurus gramineus? from the Wynaad.
" anamallensis " "
Dryophis mycterizans—whip snake.
Echis carinata.
Naia tripudians—cobra.

The Python was caught in the jungle at Gudavancheri, where it was found coiled round a goat. Specimens were attached, in frames, to the cages, illustrating the strings of eggs of the rat snake, and the spurs in which the rudimentary hind limbs of the Python terminate.

14. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 13,345 against 11,256 in 1897–98—

Smallest number of readers on any day	..	..	12
Largest " "	..	..	192
Smallest " Sunday	..	..	17
Largest " "	..	..	103

The number of books given out was 16,677 against 11,356 in 1897–98. The following tabular statement shows the numbers of applicants for books, and of the volumes given out during the last two years:—

Months.	1897-98.		1898-99.	
	Number of applicants for books.	Number of volumes given out.	Number of applicants for books.	Number of volumes given out.
April ..	Closed.		815	1,307
May ..	302	471	736	1,151
June ..	436	648	655	1,115
July ..	566	787	836	1,405
August ..	588	915	890	1,295
September ..	609	1,090	926	1,322
October ..	523	1,025	930	1,375
November ..	499	869	844	1,277
December ..	866	1,409	1,127	1,828
January ..	1,056	1,476	1,102	1,496
February ..	838	1,241	1,134	1,682
March ..	998	1,425	1,078	1,424
Total ..	7,281	11,356	11,073	16,677

From this statement it will be seen that there was, in the year under review, an increase of 52 per cent. in the number of applicants, and of 47 per cent. in the number of books given out.

The comparatively large number of readers between December and March is probably due to the large number of holidays in December and January, and to the presence in Madras of mofussil students reading for the University examinations.

During the year the following subject-index catalogues were printed:—

(1) Religion.
(2) Forensic medicine; hygiene and public health; materia medica and therapeutics; medical jurisprudence; medicine; microscope and microscopy.

Catalogues of "Serials" were added to the folio copies of catalogues, which were maintained up to date.

The total number of standard works added to the library was 379, of which 296 were acquired by purchase, and 83 presented (*vide* Appendix D). The library was indebted to General G. Godfrey Pearse, C.B., for a donation of a collection of books and pamphlets relating to Indian numismatics and other subjects.

In Appendix C is given a statement, showing the number of readers in every month during each hour of the working day, from which it will be seen that the most popular hours for readers were, as in the previous year, from 2 to 5 P.M.

15. VALUABLE STOCK.—The necessary inventory of stock was maintained and duly checked. The collections were all in good order at the end of the year.

APPENDIX A.

Museum Old Buildings.

VISITORS from 1st April 1898 to 31st March 1899 on week days.

1898-99.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Sinhalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	1,402	527	190	1,339	4	..	13	31	1	..	26	2
May	1,799	643	442	1,954	3	2	19	24	..	..	9	20
June	2,390	860	258	2,089	6	..	19	55	..	..	21	2
July	2,017	790	407	1,930	23	..	13	17	..	..	4	12
August	1,669	685	297	1,645	7	2	16	13	..	1	12	8
September	1,653	563	231	1,499	11	4	11	8	..	..	17	4
October	1,319	377	185	1,122	4	..	10	3	..	..	12	4
November	1,243	479	163	1,132	10	2	11	10	..	1	7	3
December	3,325	940	271	3,039	10	14	24	14	..	..	29	5
January	1,935	713	345	1,880	27	..	38	18	2	2	22	2
February	1,170	446	451	1,277	10	..	15	9	..	..	6	10
March	1,303	366	163	1,294	6	..	12	27	..	..	15	..
Total ..	21,225	7,389	3,403	20,200	121	24	201	229	3	4	180	72

1898-99.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
April	3,535	10,459	13,994	8,646	5,348	13,994
May	4,915	12,024	16,939	10,720	6,219	16,939
June	5,700	14,913	20,613	12,317	8,296	20,613
July	5,213	14,069	19,282	11,652	7,630	19,282
August	4,355	14,824	19,179	11,200	7,979	19,179
September	4,001	13,521	17,522	10,335	7,187	17,522
October	3,036	10,109	13,145	7,976	5,169	13,145
November	3,061	8,800	11,861	7,576	4,285	11,861
December	7,671	42,807	50,478	26,586	23,892	50,478
January	4,984	22,170	27,154	15,161	11,993	27,154
February	3,394	12,577	15,971	9,240	6,731	15,971
March	3,186	14,257	17,443	9,263	8,180	17,443
Total ..	53,051	190,530	243,581	140,672	102,909	243,581

Museum Old Buildings.

VISITORS from 1st April 1898 to 31st March 1899 on Sundays.

1898-99.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Sinhalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	337	109	55	263	..	..	..	4	..	..	7	..
May	370	104	34	255	2	..	4	..	..	..	3	8
June	491	131	46	259	..	..	..	6	..	..	5	..
July	611	182	44	520	..	..	4	10	..	..	1	7
August	444	114	66	297	..	..	5	10	..	..	27	..
September	431	126	56	308	..	..	6	6	..	..	7	..
October	320	80	51	202	..	..	..	..	..	..	4	..
November	345	100	32	265	..	..	..	5	..	..	..	..
December	478	151	53	436	..	..	..	9	..	..	4	2
January	642	244	67	1,695	2	..	11	2	..	..	12	..
February	334	101	212	390	..	..	6	2	..	..	5	6
March	380	109	60	320	..	..	1	9	..	..	..	..
Total ..	5,183	1,551	776	5,210	4	..	37	63	..	..	75	23

1898-99.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
April	775	1,031	1,806	1,331	475	1,806
May	780	1,108	1,888	1,369	519	1,888
June	938	1,597	2,535	1,703	832	2,535
July	1,379	2,310	3,689	2,567	1,122	3,689
August	963	1,508	2,471	1,740	731	2,471
September	940	1,835	2,775	1,933	842	2,775
October	657	1,314	1,971	1,363	608	1,971
November	747	1,125	1,872	1,391	481	1,872
December	1,133	2,186	3,319	2,241	1,078	3,319
January	2,675	58,640	61,315	24,608	36,707	61,315
February	1,056	2,187	3,243	2,360	883	3,243
March	879	2,551	3,430	1,970	1,460	3,430
Total ..	12,922	77,392	90,314	44,576	45,738	90,314

Museum New Buildings.

Visitors from 1st April 1898 to 31st March 1899 on Week days.

1898-99.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Sinhalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	1299	461	97	1,421	2	..	2	33	..	..	19	4
May	1731	564	293	1,573	2	3	24	86	..	..	20	2
June	2310	751	176	1,870	3	..	22	88	..	..	41	1
July	1800	593	154	1,866	5	2	15	80	..	..	35	..
August	1740	435	182	1,532	4	..	23	57	..	2	48	1
September	1384	362	115	1,334	13	1	7	62	..	1	32	1
October	963	236	124	1,109	6	..	12	49	..	..	21	..
November	1065	272	92	1,213	2	2	17	46	..	..	12	..
December	2468	619	165	2,334	8	15	13	80	..	..	47	1
January	2169	487	121	2,504	5	2	48	102	1	..	30	2
February	1253	284	442	1,625	2	..	16	56	..	..	33	4
March	1125	275	109	1,334	5	..	15	65	..	2	38	2
Total ..	19,307	5,339	2,070	19,715	57	25	214	804	1	5	376	18

1898-99.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
April	3,338	8,025	11,363	7,050	4,313	11,363
May	4,298	12,855	17,153	11,055	6,098	17,153
June	5,262	16,679	21,941	13,521	8,420	21,941
July	4,550	15,757	20,307	12,365	7,942	20,307
August	4,024	14,302	18,326	11,082	7,244	18,326
September	3,312	13,918	17,230	10,157	7,073	17,230
October	2,520	11,402	13,922	8,105	5,817	13,922
November	2,721	10,294	13,015	8,243	4,772	13,015
December	5,750	43,939	49,689	25,181	24,508	49,689
January	5,471	35,069	40,540	21,274	19,266	40,540
February	3,715	16,047	19,762	11,711	8,051	19,762
March	2,970	13,706	16,676	9,472	7,204	16,676
Total ..	47,931	2,11,993	2,59,924	1,49,216	1,10,708	2,59,924

Museum New Buildings.

VISITORS from 1st April 1898 to 31st March 1899 on Sundays.

1898-99.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Sinhalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	325	130	18	234	1	..	..	8	..	..	4	..
May	310	108	14	290	..	9	..	20	..	..	..	..
June	345	175	36	377	..	..	..	21	..	..	11	..
July	600	200	50	502	1	9	2	20	..	..	5	..
August	410	70	26	298	..	..	..	12	..	..	29	1
September	390	75	22	356	..	..	..	10	..	..	12	..
October	308	78	24	254	..	..	..	11	..	..	5	..
November	281	80	24	235	1	..	..	12	..	..	2	..
December	471	76	31	370	..	..	7	10	..	..	4	..
January	660	258	78	1,380	2	..	2	24	..	..	21	..
February	360	87	38	433	2	..	6	21	..	..	13	1
March	310	55	22	338	..	1	3	12	..	..	5	..
Total ..	4,770	1,392	383	5,047	7	19	20	181	..	..	111	2

1898-99.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
April	720	1,075	1,795	1,241	554	1,795
May	751	1,101	1,852	1,381	471	1,852
June	965	1,535	2,500	1,755	745	2,500
July	1,389	2,388	3,777	2,587	1,190	3,777
August	846	1,687	2,533	1,681	852	2,533
September	845	1,925	2,770	1,885	885	2,770
October	680	1,436	2,116	1,496	620	2,116
November	635	1,008	1,643	1,216	427	1,643
December	969	2,330	3,299	2,144	1,155	3,299
January	2,425	60,756	63,181	25,623	37,558	63,181
February	961	2,234	3,195	2,288	907	3,195
March	746	2,611	3,357	1,902	1,455	3,357
Total ..	14,932	80,086	92,018	45,199	46,819	92,018

APPENDIX B.

DONATIONS, 1898-99.

Arden, Mrs.—

Butterflies, moths, &c.

Asiatic Society of Bengal—

Rupees of the following independent Kings of Bengal, found in Santhal Parganas :—

Sikandur Sháh I.
Shihábud-din Báyazid.
Jalal-ad-din Muhammad.

Rupees of the following Bengal Sultans, found in Mymensingh :—

Jalal-ad-din Fath Sháh.
Shamsad-din Muzaffar Shah.
Ala-ad-din Husain Sháh.
Ala-ad-din Firóz Sháh.
Nasir-ad-din Nasrat Sháh.
Ghiyas-ad-din Mahmud Sháh III.

Copper and silver coins belonging to the class commonly known as Gadhiyipaisé, found in Darbhanga—

Varáha coins
Vigraha coins (Indo-Sassanian)

Silver punch-marked coins, found in Gaya.

Atheseum Pillay, Mr. T. G.—
Insect (Cricket).

Badcock, Mr. C. F.—
White-breasted Water-hen (Amaurornis phœnicurus).

Bartley, Mr. H.—
Horns of wild buffalo (Bos bubalus) from the Kimedy Malialis, Ganjám.

Bellary, District Forest officer—
Blocks of Dammur red granite and Hurlihal trap porphyry.

Bobbili, Kumara Raja—
Photographs of Gadabas of Vizagapatam.

Brown, Mr. A.—
Specimens of Malabar timbers.

Browne, Colonel W. R.—
Rat-snake (Zamenis mucosus).

Cadell, Mr. C. R. S.—
Fish (Pterois volitans).

Chatterton, Mr. A.—
Cobra (Naia tripudians).

Daly, Mr. W. M.—
Skull of rib-faced or barking-deer (Cervulus muntjac).

Fawcett, Mr. F.—
Umbrella carried away by pilgrims from Jagganath.

Foote, Mr. R. B.—
Chank (Turbinella rapa) shell; distorted.

Foulkes, Mr. R.—
Snake (Chrysopelea ornata; greenish-yellow variety).

Gabbett, Miss.—
Wild silk moth (Actias selene).

Ganjám, District Magistrate—
Silver coins (Denarii of Tiberius) found in a hill at Salibundam village, Chicacole taluk.

Giffard, Captain G.—
Caterpillar.

Gillespie, Mr. J. T.—
Larva of sphinx moth.

Govind Doss, Mr. L.—
Snake (Tropidonotus stolatus).

Gray, Mr. C.—
Skin and skull of leopard-cat (Felis bengalensis).
Skull of large brown flying squirrel (Pteromys oral).
Skull of rib-faced or barking-deer (Cervulus muntjac).

Griffin, Mr. A.—
Moth.

Hammick, Mr. M.—
Photographs of Khonds, and Meriah sacrifice tree.

Harcourt, Mr. G.—
Nest of trap-door spider.

Hesketh Biggs, Mrs.—
Snake (Dryophis mycterizans).

Higgens, Mr. A. W. B.—
Square brick, found in a village near Rámachandrapuram, Gódávari.
Round stone with a hole in it, found at Vallam, Tanjore.

Hogg, Mr. J. R.—
Double cocoanut.

Holland, Mr. T. H.—
Collection of Coorg rocks.

Hubbard, Mr. J. R.—
Leaf insect.

Jagadisa Aiyar, Mr. P. V.—
Biotite (black mica) in granite.

James, Mr. J. P.—
Mother of pearl shells (Avicula margaritifera).

King, Mrs.—
Wild silk moth (Actias selene).

Lincoln, Miss. E.—
Larva of sphinx moth.

Lodge, Mr. F.A.—
Leaf insect.

Madura District Judge—
Series of copper plates.

Maitland, Colonel J.—
Insect (Nepa sp. " Water-scorpion ").

Municipal Commission, Madras—

Australian parakeet.
Cockatoo.
Rose cockatoo.
Yellow crested cockatoo.
Parakeet.
Parrot.
Singapore parrot.
Emu.
Spectacle monkey.
Tiger.
Leopard.
Sambar.
Llama.

Muthukumara Pillay, Mr. A.—
Cast (moult) skin of Rat-snake (Zamenis mucosus).

Narayanasawmy, Mr. M.—
South Indian copper coins, bow-type (Chera ?)

North-Western Provinces and Oudh, Government.—
Moghul coins.

Phipps, Mr. C. E.—
Insect: Nepa sp.

Pinto, Mr. P.—
Snakes, alive—
Krait (Bungarus cœruleus).
Rat-snake (Zamenis mucosus).
Cerberus rhynchops.
Dendrophis pictus.
Lycodon aulicus.
Tropidonotus piscator.

Ramachandra Iyer, Mr. A. V.—
Stick with the form of a dog's face.
Crystals of biotite (black mica).

Small, Mr. J. W.—
Fan made by the Velláas of Jaffna.
Horoscope in Tamil, manufactured from the tender leaves of the Palmyra palm by the Vellálas of Jaffna.

Smart, Colonel, A. W.—
Portrait in oils of Sivaji, Raja of Tanjore.

Smith, Captain J. H.—
Moth (Actias selene).

Soobroyalu Chetty, Mr. V.—
Australian cockatoo.

Spoor, Mr. J. L.—
Dutch tomb stone found in Madras.

Stoney Mr. E. W.—
Young crocodile (alive).

Thurley, Mr. C.—
Snake (Tropidonotus piscator).

Venkatadry Naidu, Mr. R.—
Box, fly brush (chámaram), and neck chains made by hill-tribe, Vizagapatam.

Vibert, Mr. L.—
Quarter farthings, 1839, 1853.

Waddington, Mr. H.—
Snakes from the Wynád (Dryophis pulverulentus).

Waddington, Mr. H.—
Snake, Trimeresurus gramineus, alive.
Do. Trimeresurus anamallensis, alive.
Do. Tropidonotus plumbicolar.

West, Mr. H. C.—
Magnetite from Kanjamalai, Salem.
Coal from Singareni coal fields, with matrix attached.
Travancore knife with ornamental silver sheath.

Wilson, Mr. A. C.—
Soft-furred field-rat (Mus mettada), alive.

APPENDIX C.

STATEMENT showing the total number of readers in Library in every month during each hour of the day, 1898-99.

—	7—8	8—9	9—10	10—11	11—12	12—1	1—2	2—3	3—4	4—5	5—6	Total.
April	80	95	105	102	91	75	79	115	137	137	45	1,061
May	116	102	99	83	73	58	79	85	115	95	63	968
June	86	106	88	91	77	75	71	94	105	109	26	928
July	97	84	81	93	70	79	78	127	114	107	19	949
August	73	79	85	94	117	69	66	132	123	129	31	998
September	64	93	46	69	104	145	99	98	127	92	28	965
October	58	62	75	90	81	110	95	84	116	66	16	853
November	64	80	69	84	95	88	78	107	77	59	4	805
December	78	88	135	158	118	175	222	231	196	164	22	1,587
January	69	124	154	164	153	167	181	239	243	169	33	1,696
February	67	103	109	113	132	95	109	159	153	117	31	1,188
March	101	98	130	131	138	125	100	162	153	169	40	1,347
Total ..	953	1,114	1,176	1,272	1,249	1,261	1,257	1,633	1,659	1,413	358	13,345

APPENDIX D.

LIST OF BOOKS ADDED TO THE LIBRARY.

Donations.

Abbott, J.—Account of the Battle-field of Alexander and Porus now occupied by the Mutinous Sikh Army. Calcutta, 1849, 8vo.
A brief Sketch of British Progress during the Victorian Era. [*Tamil.*], 1898.
Aiyasami Sastriar, S.—Kongu History. Madras, 1898, 8vo.
Balasubramania Pillay, D.—Vivekarasattalattu: a Lullaby. [*The Viveka Chintamani Series.*], 1894, 8vo.
Bary, A. DE.—Comparative Anatomy of the Vegetative Organs of the Phanerogams and Ferns. *Illust.*, Translation, Oxford, 1884, 8vo.
Bennet, A. W., and G. Murray.—Handbook of Cryptogamic Botany. *Illust.*, 1889, 8vo.
Benson, C. A.—Atmospheric Freaks. Ealing, 1896, 8vo.
Bidie, G.—Pagoda or Varáha Coins of Southern India. *Illust.*, Reprint, Calcutta, 1883, 8vo.
Blanford, W. T.— Birds. [*Fauna of British India.*] *Illust.*, Vol. IV, 1898, 8vo.
Branfill, B. R.—Names of Places in Tanjore. Madras, 8vo.
Brown, C. P.—Cyclic Tables of Hindu and Muhammadan Chronology. Madras, 1850, 8vo.
Burnell, A. C.—Devil Worship of the Tuluvas. *Illust*, Reprint, Bombay, 1894, 4to.
Cameron, P.—Hymenoptera Orientalia: Contribution to Knowledge of Hymenoptera of the Oriental Zoological Region. Reprint, Manchester, 1898, 8vo.
Campbell, F.—Index Catalogue of Bibliographical Works (chiefly in the English Language) relating to India, 1897, 8vo.
Codrington, O.—Coins of Bahmani Dynasty. *Illust.*, Reprint, 1898, 8vo.
——— some rare and unedited Arabic and Persian Coins. *Illust.*, Hertford, 1889, 8vo.
Cooke, M. C.—Britith Desmids. *Illust.*, 1887, 8vo.
——— British Fresh water Algæ, exclusive of Desmidæ and Diatomaceæ. Text and plates, 1882-84, 8vo.
Cust, R. N.—John, Lord Lawrence. Reprint, Hertford, 1897, 8vo.
——— Sir C. U. Aitchison. Reprint, Hertford, 1897, 8vo.
——— Sir Herbert Edwardes. Reprint, Hertford, 1897, 8vo.
——— Twenty-five years after India. Reprint, Hertford, 1897, 8vo.

Denison, Sir W.—Attempt to approximate to the Antiquity of Man. Madras, 1865, 8vo.
Dobbs, J.—Recollections of an old 52nd man. Waterford, 1859, 8vo.
Fight at Dame Europa's School: showing how the German Boy thrashed the French Boy; and how the English Boy looked on, 8vo.
Foulkes, T.—Catechism of the Siva Religion. Translation, 1863, 8vo.
Godwin-Austin, H. H.—Land and freshwater Mollusca of India. Text (Parts VII, VIII), 8vo, and plates 4to, 1897–98.
Guyon, Abbé de.—History of the East-Indies, ancient and modern. Translation, 2 vols., 1757, 8vo.
Hassall, O. H.—History of the British freshwater Algæ, including the Desmideæ and Diatomaceæ. *Illust.*, 2 vols., 1845, 8vo.
Hawkes, H. P.—Sketch of the Coinage of Mysore. *Illust.*, Bangalore, 1856, 12mo.
Hill, G. F.—Roman Aurei from Pudukkotta, South India. Reprint, 1898, 8vo.
'Investigator' R.I.M.S. Illustrations of the Zoology. Calcutta, 1898, 4to.
Jagannath, M.—Arya Sampradayapradarsaka Gayatri Bhashyam, 1898, 8vo.
——— Do. do. explained in Hindi, 1898, 8vo.
Krishna Row, P.—Brief History of Mysore up to the death of Tippoo Sultan. Bangalore, 1868, 8vo.
Lacouperie, T. de.—L'Ere des Arsacides en 248 avant J. C. selon les Inscriptions cunéiformes. Reprint, Louvain, 1891, 8vo.
——— Premiére Introduction de la Civilisation Occidentale en Chine, 1892, 8vo.

Lindsay, J. L.—*Earl of Crawford.* Catalogue of Chinese Books and Manuscripts [*Bibliotheca Lindesiana.*] 1895, 4to.
——— Handlist of Oriental Manuscripts, Arabic, Persian, Turkish. [*Bibliotheca Lindesiana.*] 1898, 4to.
——— Handlist of a Collection of Broadside Proclamations issued by Authority of Kings and Queens of Great Britain and Ireland. [*Bibliotheca Lindesiana.*] 1886, 8vo.
——— List of Manuscripts and Examples of Metal and Ivory Bindings exhibited to the Bibliographical Society, 1898, 8vo.
——— List of Manuscripts, Printed Books and Examples of Book-binding exhibited at the International Library Conference, 1897, 8vo.
Lisboa, J. C.—List of Bombay Grasses, and their Uses. *Illust.*, Bombay, 1896, 8vo.
Loventhal, E.—Coins of Tinnevelly. *Illust.*, Madras, 1888, 8vo.
Medlicott, H. B.—Manual of Geology of India. Economic Geology, 2nd edition, 1898.
Part I, Corundum, T. H. Holland.
Moore, F.—Lepidoptera Indica. *Illust.*, Parts 31—35, 4to.

Murdoch, J.—The Famine Policy in India and the Measures necessary to secure the Material Well-being of the People, 1898, 8vo.
——— The History of the Plague, and How to stop its Ravages, 1898, 8vo.
——— The Indian Empire. *Illust.*, Madras, 1898, 8vo.
——— The Indian National Congress, 1898, 8vo.
——— Indian Reforms, 1898, 8vo.
——— Twelve Years of Indian Progress, 1898, 8vo.

Muthusawmy Pillai, P. S. D.—A New Method for teaching Tamil and Geography to Infants, 4 to 10 years of age, 1898, 8vo.
Nahuys, Cte. M.—Numismatique des Indes Neerlandaises. *Illust.*, 1887, 8vo.
Natesan, M.—The Sastra Vichitram: or Wonders of Science, containing a series of most interesting and instructive Experiments in every Branch of Science, 1898. *Illust.*, 8vo.
Nathan, R.—Plague in India, 1896–97, 4 vols., 1898, 8vo.
Newall, D. J. F.—Military Colonization as a Reserve for India. Reprint, 1881, 8vo.
Newton, Sir Isaac. - Mémoire sur la Monnaie. Translation, 1889, 8vo.
Pearse, G. G.—Note on a Rama Tanka. *Illust.*, Reprint, Pamphlet, Calcutta, 1880, 8vo.
Pocock, R I.—Genus Pœcilotheria: its Habits, History, and Species. *Illust.*, Reprint, 1899, 8vo.
Rapson, E. J.—On the Attribution of certain Silver Coins of Sassanian Fabric. Reprint, 1896, 8vo.
Rohde, R. T.—Practicable Decimal System for Great Britain and her Colonies. Reprint, 1888, 8vo.
Sewell, R.—Eclipses of the Moon in India, 1898, 4to.
———Notes on Hionen-Thsang's Dhanakacheka. Reprint, 1880, 8vo.
Sibthorpe, C.—Clinical Manual for India. *Illust.*, 4th edition, Madras, 1897, 8vo.
Smith, E. W.—Portfolio of Indian Architectural Drawings, Part I, 1897, fol.
Swaminatha Aiyar, C. V.—The Story of the Life of Buddha. [*Viveka Chintamani Series,*] 1897, 8vo.
——— Life of Her Majesty Queen Victoria, Empress of India. [*Viveka Chintamani Series,*] 1898, 8vo.
——— Kamalambal or the Fatal Rumour. [*Viveka Chintamani Series.*] 1896, 8vo.
——— The Encouragement of Vernaculars, 1898, 8vo.
——— Vernacular studies in Madras, 1898, 8vo.

Swaminatha Aiyar, C. V.—Viveka Manjari: A Tamil Miscellany, Vol. I. [*Viveka Chintamani Series.*] 1897, 8vo.
Swaminatha Aiyar, S.—Auvaiyar Attisudi Viruttiurai, 1898, 8vo.
Theobald, W.—Note on Symbols found on the punch-marked Coins of Hindustan. *Illust.*, Reprint, Calcutta, 1890, 8vo.
——— Note on some of the Symbols on the Coins of Kunanda. Reprint, Calcutta, 1886, 8vo.
——— Notes on early Coinages in North-West India and in the Konkan. Reprint, Calcutta, 1894, 8vo.
——— On certain Symbols or Devices on the Gold Coins of the Guptas. Reprint, Calcutta, 1884, 8vo.
Thieullen, A.—Lettre á M. Chauvet, pour faire suite aux véritables Instruments usuels de l'Age de la Pierre. *Illust.*, Paris, 1898, 8vo.
Thomas, E.—Coins of the East India Company in Bombay under the Charters of Charles II. Reprint, 1883, 8vo.
Tracy, J. E.—Pandyan coins. *Illust.*, Reprint, Madras, 1888, 8vo.
——— Sethupati coins. *Illust.*, Reprint, Madras, 1896, 8vo.
Vijiaraghavulu Naidu, S.—Shree Sitarama Anjaneya Samvadasara Sangraham, 1898, 8vo.
Watt, G.—Pests and Blights of the Tea Plant: Report of Investigations in Assam and Kangra. Calcutta, 1898, 8vo.

Purchases.

Albermarle (*Earl* of) and *G. L. Hillier*—Cycling. *Illust.* [*Badminton Library.*] 1896, 8vo.
Arnold, Sir E.—The Light of the World: or the great Consummation. *Illust.*, 1896, 8vo.
Arnold, T.—Manual of English Literature, historical and critical. 7th edition, 1897, 8vo.
Baden-Powell, B. H.—The Indian Village Community, 1896, 8vo.
Balfour, H.—Evolution of Decorative Art. *Illust.*, 1893, 8vo.
Ball, W. P.—Are the effects of Use and Disuse inherited? [*Nature Series.*] 1890, 8vo.
Baring-Gould, S.—Strange Survivals: Some Chapters in the History of Man. *Illust.*, 2nd edition, 1895, 8vo.
Barnes, R.—Clinical History of the Medical and Surgical Diseases of Women. 2nd edition, 1878, 8vo.
Bartlett, A. D.—Wild Animals in captivity. *Illust.*, edited by E. Bartlett, 1899, 8vo.
Baye Baron, J. DE.—Industrial Arts of the Anglo-Saxons. Translation, *Illust.*, 1893, 4to.
Beddard, F. E.—Elementary practical Zoology. *Illust.* [*Longman's Practical Elementary Science Series.*] 1898, 8vo.
Bernard, H. M.—Apodidæ: A Morphological Study. *Illust.* [*Nature Series.*] 1892, 8vo.
Brightwen, Eliza.—Glimpses into Plant Life: Easy Guide to the Study of Botany. *Illust.*, 1897, 8vo.
Brothers, A.—Manual of Photography. *Illust.*, 1899, 8vo.
Brown, J. D.—Manual of Library Classification and Shelf Arrangement, 1898, 8vo.
Buchanan, W. M.—Dictionary of Science and Technical Terms. *Illust.*, 1884, 8vo.
Carlyle, T.—Works. Centenary edition, 17 vols., 8vo.
——— French Revolution, 3 vols.
——— Heroes and Hero worship.
——— History of Frederick the Great, 6 vols.
——— Life of John Sterling.
——— Oliver Cromwell's Letters and Speeches, 4 vols.
——— Past and Present.
——— Sartor resartus.
Cartailhac, É.—La France préhistorique d' aprés les Sépultures et les Monuments. *Illust.*, Paris, 1889, 8vo.
Cecil, E.—Primogeniture: History of its Development and Practical Effects, 1895, 8vo.
Choisy, A.—Histoire de l'Architecture. *Illust.*, 2 vols., Paris, 1899, 8vo.
Church, A. H.—English Earthenware. *Illust.*, 1894, 8vo.
Congrès International d'Anthropologie et Archéologie préhistorique. Comte-rendu, 1869.
Cox, S. H.—Prospecting for Minerals: practical Hand-book. *Illust.*, 1898, 8vo.
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APPENDIX E.

CLASSIFIED LIST of Expenditure of the Government Museum during the year 1898–99.

	Actuals, 1898-99.	Revised estimate, 1898-99.
Salaries—	RS.	RS.
Superintendent	9,600	9,600
Exchange compensation allowance	626	645
Local allowance	2,400	2,400
Total ..	12,626	12,645
Permanent establishment—Government Museum—		
First assistant, second assistant, first, second and third taxidermists, herbarium-keeper, artist, writer, assistant writer, thirteen hamals, six gallery attendants, superintendent's peon, door-keeper, chickledar and two peons—33 persons	7,024	7,117
Temporary establishment—Government Museum—		
Collecting taxidermist, three gardeners, three sweepers, five watchmen, water-pandal Brahmin, punkah-puller and chokra—15 persons	1,073	1,075
Permanent establishment—Connemara Public Library—		
Sub-librarian, three attendants and two peons—6 persons	2,230	2,281
Temporary establishment—Connemara Public Library—		
Servant (sweeper)—1 person	40	48
Total, Establishment ..	10,367	10,521
Allowance—		
Travelling allowance	962	1,047

	Actuals, 1898-99.	Revised estimate, 1898-99.
	Rs.	Rs.
Supplies and Services—		
Cost of specimens purchased on tour	847	900
Objects of interest and coins purchased at head-quarters	701	700
Fittings, furniture, &c., for the collections	2,833	2,853
Cost of books and publications	2,256	1,800
Library	1,589	2,000
Lithographing plates	506	500
Ammunitions	15	15
Charges for feeding live animals	193	120
Expenses—		
Reading coins	19	10
Measurement	16	35
Total, Supplies and Services ..	8,975	8,933
Contingencies—		
Purchase of country articles each costing less than Rs. 50	94	100
Subscription to newspapers	28	25
Cost of Europe stores (including freight)	13	15
Freight landing and shipping charges	63	35
Repairs to furniture	81	100
Gardening expenses	204	200
Wages and cooly	142	135
Cleaning charges	38	50
Supply of drinking water	3	5
Scavenging expenses	45	45
Advertisements	7	..
Postage charges	191	180
Telegraph charges	12	20
Rents, rates and taxes	3,843	3,843
Binding charges	303	300
Lighting charges	81	85
Petty carriage and cooly charges	212	156
Clothing of servants	75	100
Office expenses, including such articles as gum-pots, rat-traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vinegar, water-pots, ropes, match-boxes	17	35
Total, Contingencies ..	5,452	5,429
Grand Total ..	38,382	38,575

APPENDIX F.

Anthropology in Madras.

When recently on furlough in England, I was greatly interested in hunting up the facilities for the study of anthropology in London, and in the scheme for the establishment of a bureau of ethnology for the British Empire. And it has been suggested to me that it may interest those concerned in the development of anthropological research to know what is being done, in a mild way, in a remote possession of the Empire, the Madras Presidency, viz., the southern portion of the Indian peninsula. I add this geographical explanation, inasmuch as a friendly critic, in a recent review of my work, got hopelessly mixed between Madras and Bengal, reminding me of the story of the Viceroy-elect, who was overheard murmuring to himself, "Bombay in the west, Calcutta in the east, Madras in the south." Wide as is the area, and numerous as are the tribes, castes and races included within my limited beat of 150,000 square miles, I have set myself the task, which must perforce occupy many years, of carrying out a detailed anthropological survey. This survey was, with the approval of the Madras Government, inaugurated in 1894. In that year, equipped with a set of anthropometric instruments obtained on loan from the Asiatic Society of Bengal, I commenced an investigation of the hill-tribes of the Nilgiris, the Todas, Kotas, and Badagas, bringing down on myself the unofficial criticism that "anthropological research at high altitudes is eminently indicated when the thermometer registers 100° in Madras." From this modest beginning have resulted: (1) investigation of the various classes which inhabit the city of Madras, during my residence at head-quarters,

(2) periodical tours to various parts of the Presidency, with a view to the study of the more important tribes and classes; (3) the publication of bulletins, wherein the results of my work are embodied; (4) the establishment of an anthropological laboratory, equipped with the apparatus necessary for carrying out anthropometric research; apparatus for testing sight, hearing, vital capacity, hand-grip, &c.; a small series of Hindu, Muhammadan, Burmese and Sinhalese skulls; and an anthropomorphic series, still in a very early stage of development, but including the finger-print impressions of an orang-utan; (5) a collection of photographs of native types, arranged in albums; (6) a series of lantern-slides for lecture purposes.

A museum, such as that of Madras, the visitors to which sign their names in Tamil, Telugu, Kanarese, Malayalam, Nagari, Hindustani, Mahrati, Guzarati, Bengali, Burmese, Sinhalese and Chinese, lends itself to the requirements of the anthropologist, as it is resorted to by very large numbers of the poorer classes, who, in return for a small fee, are oft-times willing to lend their bodies for the purposes of anthropometry. And, nearly every morning, I am to be seen measuring Hindus or Muhammadans, amid an admiring crowd of native visitors (the females dressed in gaudy English piece-goods), in the surrounding corridor. Quite recently, when I was engaged in an enquiry into the Eurasian or half-breed community, the booking for places was almost as keen as on the occasion of a first night at the Lyceum, and the sepoys of a native infantry regiment, quartered in Madras, entered heartily into the spirit of what they called the "Mujeum gymnashtik shparts," cheering the possessor of the biggest hand-grip, and chaffing those who came to grief over the spirometer. Anthropological research in the city of Madras, where the native community has become accustomed to the European, and discovered that, if his ways are peculiar, he is at any rate harmless, is all plain sailing. But, in the jungles and places remote from civilisation, one has to deal with simple-minded folk, unfamiliar with the eccentricities of the investigator, and suspicious of his motives. Well do I remember a native remarking at a pearl-fishery camp, "Mr. Thurston is a pleasant man, and it is a great pity he is so mad." The fact indicating insanity being that I used to sit outside my tent in the sun, at mid-day in the month of April, examining oyster after oyster in connection with the pearl-producing area.

The essential ingredients of a successful campaign in the wilds are tact, patience, 4-anna pieces, cheap cheroots, and as a final resource, raw whiskey or brandy. The Paniyan women of the Wynaad, when I appeared in their midst, ran away, believing that I was going to have the finest specimens among them stuffed for the museum. Oh, that this were possible! The difficult problem of obtaining models from the living subject would then be disposed of. The Muppas of Malabar mistook me for a recruiting sergeant, bent on enlisting the strongest of them to fight against the Moplahs. An Irula of the Nilgiris, who was "wanted" for some ancient offence relating to a forest elephant, refused to be measured on the plea that the height-measuring standard was the gallows. A mischievous rumour found credence among the Irulas that I had in my train a wizard Kurumba, who would bewitch their women and compel me to abduct them. The Malaialis of the Shevaroys got it into their heads that I was about to annex their lands on behalf of the Crown, and transport them to the penal settlement in the Andaman islands; and one of them informed me that he would rather have his throat cut than be measured. On one occasion I casually photographed a group of Badagas in their bazaar, and, on the following day, a deputation waited on me with a petition to the effect that "we, the undersigned, beg to submit that your honour made 'botos' of us, and have paid us nothing. We, therefore, beg you to do this act of common justice." The deputation was made happy with a *pour boire*. Would that official deputations could be disposed of as easily!

Despite the trifling obstacles at the outset, confidence was eventually established with the various tribes just referred to, though not without a good deal of palavering and mild bribery, and a sufficient number of individuals for statistical purposes were investigated.

The main objects, which are systematically kept in sight during my wanderings, are:—

(1) To record at least the essential measurements of men and (when they will permit) women.

(2) To study the characteristics of external anatomy.

(3) To record "manners and customs," tattoo-marks, clothing, personal adornment, &c.

(4) To take photographs of typical individuals, dwelling-huts, &c.

(5) To acquire by purchase "specimens" illustrating clothing, jewellery, musical instruments, games, &c.

As a general rule the traveller, who makes collections in any branch of science, hands them over, as a gift or by purchase, to some national or provincial museum, and honours are divided; the museum securing the collection, and the collector being immortalised on a label or in a monograph. Possibly, with luck, a new species, or even genus, is named after him, and his reputation is enhanced in the family circle. Looking recently, on a depressing November day such as we in the East know not, at a collection of sponges which to the casual visitor possess no special attraction, exhibited in or by my name at the British Museum (Natural History), I recalled to mind the many pleasant hours spent in a dug-out (canoe) on the coral reefs, an attack by a saw-fish, and a severe sun-head. And the museum, whose destinies I have steered since 1885, teems with happy memories of camp and jungle life; for, by the fortune of circumstances, it falls within my province not only to make collections, but to preside over their arrangement for exhibition. And the advantages of this dual function are self-evident. A tour concluded, the work of museum

arrangement commences; and here one is met with an obvious difficulty at the outset. For two systems of arrangement are possible, each with much to be said both for and against it, and a selection of one or the other has to be made, for the material collected, and available space will not, as a rule, suffice for both. Either the collections may be arranged according to the nature of the exhibit, *e.g.*, models of boats, sacrificial utensils, musical instruments, games, images, &c; or each tribe or community may be represented in its various aspects, animal and social, in a single case or in adjacent cases. For myself, I give the preference to the latter system, mainly on the score of convenience and finality of arrangement. Very effective, I remember, in one of my galleries were some life-size photographic transparencies of Andamanese heads, presented by Mr. Portman to the ethnological section of the Indian Museum, Calcutta, when I was in temporary charge thereof some years ago. So, too, were the models of the Andamanese, executed, if my memory serves me rightly, by a Bengáli modeller. But the utility of most models, which I have seen, is marred by the want of care in representing the colour of the skin, and in decorating the model with the proper jewellery, which, in many cases, is absolutely characteristic of a particular tribe.

Writing elsewhere, I said "the more remote and unknown the race or tribe, the more valuable is the evidence afforded by the study of its institutions, from the probability of their being less mixed with those of European origin". Tribes which, only a few years ago, were living in a wild state, clad in a cool and simple garb of forest leaves, buried away in the depths of the jungle, and living, like pigs and bears, on roots, honey, and other forest produce, have now come under the domesticating, and sometimes detrimental influence of contact with Europeans, with a resulting modification of their conditions of life, morality and even language. The Paniyans of the Wynaad and the Irulas, who inhabit the slopes of the Nilgiris, now work regularly for daily wage on Planters' estates; and I was lately shocked by seeing a Toda boy studying for the third standard, instead of tending the buffaloes of his "mand". Ample proof can be adduced in support of the fact that European influence, import-trade with other countries, and the struggle for existence, are bringing about a rapid change (sad from an ethnographic standpoint) among the natives of Southern India, both tame and wild. It has recently been said that "there will be plenty of money and people available for anthropological research when there are no more aborigines"; and it behoves our museums in Great Britain and its dependencies to waste no time in completing their anthropological collections.

I gathered from observation when in London (1) that man as a social and intellectual being is illustrated, with the unavoidable want of proportion, when no systematic scheme for the regular expansion of the collections is at work, at the British Museum, Bloomsbury; (2) that it is under contemplation to illustrate man and the varieties of the human family from a purely animal point of view at the British Museum (Natural History), South Kensington; (3) that skulls must be sought for at the Royal College of Surgeons, Lincoln's Inn fields; (4) that lectures and anthropological literature are available to members at the Anthropological Institute, Hanover square. To this must be added (5) Mr. Galton's laboratory. Surely a great want of centralisation, such as might well be remedied, is indicated here. And as I wandered, both in and out of the London season, through the deserted galleries of the Imperial Institute, I could not refrain from speculating whether, with a radical change of policy for good, this much-discussed building could not be converted into our great National Museum of Ethnology, where man shall be represented fully and in every aspect, and where those interested in ethnological research could find under one roof a skilled staff to appeal to in their amateur difficulties, collections, literature lectures, and anthropological laboratory. For the great mass of visitors to popular museums, who come under the heading of sightseers, it is of primary importance that the exhibits should be attractive. And I feel convinced that, were an ethnological museum up to the high standard of the British Museum (Natural History) established, it would, when its reputation became known, be, like Madame Tussand's, widely resorted to by the general public, and that, by an admixture of free and paying days, and by the charge of a small fee for examination in the laboratory, it might be made to a certain extent self-supporting, and not entail a great burthen of expenditure on the State—*Nature*.

APPENDIX G.

Fishery Investigations.

In returning the papers and map relating to fish-curing forwarded to me for consideration, I may state at the outset that I entirely agree with the statement that it is of importance to gain some knowledge of the habits of the most valuable kinds of fish, and of the movements of shoals, and that accurate particulars of the takes of the most valuable descriptions of fish, or of those most abundantly caught, would be of more value than doubtful statistics regarding many different kinds.

2. What is really wanted is, as Professor Ray Lankester has expressed it, "a specially detailed knowledge of the life-history of those species of fishes which are valuable to man, and are the subject of fisheries; a knowledge of their food, and its

history in detail; of their enemies in the shape of other fishes, birds, &c., which prey upon them and their young; a knowledge of their parasites, injurious or harmless, and of their diseases. Such knowledge may be termed the special biology of economic fishes".

3. In this connection I may quote from a prize essay on "The Relations of the State with Fishermen and Fisheries," London Fisheries Exhibition, 1883. Mr. C. E. Fryer therein states that "only the most careful and continuous investigation will discover the manifold laws of nature, which govern the migrations of fish, their spawning times and places, their development, the nature of their food, and all the other secrets of their economy. If, when the fishermen are lamenting the absence of the accustomed shoals of herring on their coasts, and fruitlessly throwing the blame on their neighbours, the State could step in with the assertion that the fish had disappeared because of certain conditions, either of temperature, of food, or of currents, which the fishermen could hardly be expected to take cognizance of, and could tell them where they, or others like them, could be found, it would be giving the most substantial form of encouragement to the fisheries". Mr. Fryer further remarks that "the State should neglect no opportunity of mastering, through the agency of a duly qualified department, armed with all needful powers, every detail, natural as well as artificial, of the fishing industry. Norway and the United States have taken the initiative in thus combining scientific research with practical administration in a single department, charged with the superintendence of the fishing industries".

4. I am asked to draw up a draft of instructions to officers in charge of fish-curing yards for the record of such information regarding the movements of migratory fishes round the coast as will, in my opinion, be most valuable. Bearing in mind that the instructions are for petty officers, in the receipt of small pay, for the most part ignorant of English, and incapable of appreciating subtle specific characters, I would suggest that, as an initial experiment detailed observations should be carried out in connection with the following well-known, but economically important species of fishes, and information concerning them collected for a provisional period of two years, commencing, if possible, at all fish-yards in the Presidency, synchronously with the renewal of fishing operations on the West Coast after the present south-west monsoon :—

Clupea ilisha, sable fish or hilsa.
Clupea fimbriata, "sardine".
Clupea lile, "sardine".
Clupea longiceps, oil "sardine" (synonym, Sardinella neohowii).
Cybium guttatum, seir.
Cybium commersonii, seir.
Stromateus sinensis, white pomfret.
Stromateus cinereus, { grey pomfret (when adult). / silver pomfret (when immature).
Stromateus niger, black pomfret.

5. I shall be glad, if the Board so wishes, to take charge of, work up, and summarise the information obtained, and suggest hereafter, in consultation with the Board, such modification of the list of fishes to be kept under special observation as may seem most desirable.

6. It will be observed that I have included among the fishes the several species of "sardines"—all, it may be noted, belonging to the Clupea or Herring family—which are the source of the fish oil industry and fish-manure. And their investigation seems to me of primary importance, as the Cochin merchants complained to me a few years ago that the "sardines" in some seasons arrive off the coast in enormous numbers, or, for several consecutive years, may be present only in quantities sufficient for purposes of food; the result of this irregularity being that one important element of success in commercial enterprise—regular supply—is wanting. In some years, I was told, large shoals of "sardines" appear, and suddenly disappear. Contracts for the supply of oil are made on the arrival of the fishes, and, in the event of their speedy disappearance, the contractor loses heavily. The main practical questions which remain to be solved in connection with the "sardines", are the reasons which attract them to our coast, where they spawn, and where they go to when they depart thence.

Fishing in the open sea with a steam-tug to enable the boats to get to and from the fishing-ground in spite of contrary winds, and readiness on the part of the fishing community to follow the movements of the fishes to greater distances than are possible under existing conditions, would probably lead to more prosperous and lucrative results. As I have pointed out elsewhere (Museum Bulletin No. 2, page 75): "In the British seas trawl-fishing is carried on at a distance of 80 to 100 miles from the nearest port, whereas, in the Madras Presidency, *e.g.*, at Tellicherry, the "deep sea" boats only go out from 8 to 10 miles from the coast. Short, however, as is this distance, speed in reaching the shore after a take of fishes is an advantage, for the boats (in which no provision is made for protection of the fishes from the sun) are not allowed by the regulations to take salt to the fishing-ground; and, as is well known, decomposition sets in, in tropical climates, with terrible rapidity." In an article on "the Natural History of the Herring" it has been pointed out that "it has been observed, on the east coast of Scotland, that the inshore fishes—say within the three mile limit—are subject to very great fluctuations, and that at distances of thirty, fifty, or seventy miles from the land, there is a far greater surety of encountering the shoals. When successful, however, the inshore fishing is by far the heaviest; and nets are far more liable to be broken or lost through overloading near the land than at a distance out. The obvious explanation is that the vanguard of the shoal finds itself confronted by the land, and pulls up, while the main body are still pushing forward, and thus a concentration of the forces takes place". The passage is quoted, as it can be applied to the Malabar herrings or "sardines".

7. The main practical object to be kept in view in connection with the fishes to be specially studied, seems to me to be the acquirement of a complete natural history of the migratory and other economically important fishes. This would involve a complete acquaintance with the species of fishes, shell-fishes, crustacea, (crabs), fish eggs, &c., on which they feed, and with the conditions under which these species flourish and multiply (close inshore, on the surface, on the bottom, in the deep sea, etc.). The movements of migratory fishes are, it may be noted, largely influenced by search for food and the reproductive impulse. The stomachs of the fishes should, therefore, be examined, and the nature of the contents (or their empty condition) recorded, and samples of the various contents preserved, when possible, for examination by some one competent to identify them. The food of fishes is, as Mr. Yarrell has pointed out, very different at different periods of the year, and this may be one of the causes, among others, of the particular excellence of the flesh of some species of fishes at particular seasons. The reproductive organs should be examined with a view to ascertaining whether the males are full of milt and the females of roe. This can easily be determined by slitting the fish open on the lower surface from the vent or anal orifice, and examining the "guts." It has been noticed that, along the Coromandal coast, "sardines" (Clupea longiceps) are rarely fat as in Malabar. In the case of sharks and skates (rays) the cavity of the uterus (womb) should be examined for the presence therein of embryoes (young), and their number and size recorded. Further, the dates of arrival and departure, and the magnitude of the shoals should be carefully recorded, and the wind force and direction, and the condition of the sky (dull, heavy, or unclouded sunshine) and water (clear, disturbed, or muddy) should be noted. It might also be ascertained whether the fluctuations of the fishery for a particular migratory fish follow a definite periodicity or cyclical order at a particular locality, with regular periods of recurrence and disappearance of the most important migratory fishes. Moreover, the time of day most suitable for fishing under ordinary conditions, *i.e.*, in the absence of shoals, and the reason of the preference for a particular time, should be noted. It is well known that fishes, and other marine animals, seek deep and cool water in the heat of the day, and rise to the surface at early morn, and as evening sets in. It would also be advantageous that the various fishes, large and small, which are present in greatest abundance synchronously with the arrival of a big shoal, should be recorded, as indicating not only a possible source of attraction to the coast, but also the species which are in pursuit of the shoal for food. During a sojourn at Calicut I was much impressed with the terrible slaughter of small fishes by men fishing from the beach with cast-nets, piles of these small fishes being left on shore as food for birds, &c., after the selection of the bigger fishes which were required for the family evening meal.

8. In the event of any doubt or difficulty arising in connection with the identification of the fishes which are to be specially examined, or others, I would suggest that, as has been repeatedly done in the past, salted and sun-dried specimens should be sent to me, with their local vernacular name attached, for identification. If this course is adopted, confusion, and the record of erroneous, and consequently valueless information, may be avoided.

9. I would suggest that, with a view to a comparison being made of the fishes caught off the East and West Coast—viz., the littoral fishes of the Bay of Bengal and Indian Ocean—a census should be held and record prepared, at each fish-curing yard, showing the names and relative abundance of the fishes caught during two entire weeks of the year, one before, the other towards the close of the south-west monsoon. Probably the end of February or early March, and the end of September or early October, would be found to be suitable as regards weather round the entire coast of the Presidency. But the exact dates could be fixed by one of our authorities on meteorological conditions.

10. Attached to this note is a specimen form for the record of observations on the lines indicated, and it would be well that, if my suggestions as to the special line of investigation are accepted, paragraphs 7 and 8 should be converted into Tamil, Telugu, Canarese and Malayalam, so that they may be intelligible to the petty officers responsible for the observations, and maintenance of the records. It is to be hoped, however, that officers of higher grades will take an active interest in the enquiry, and assist its practical outcome by the upkeep of notes and records of personal observations, in amplification of the stereotyped information contained in the columns of the official form.

SUGGESTION for Form to be maintained in connection with Fishes held under special observation.

Date.	Name of fish.	Distance from shore at which caught.	Depth at which caught — surface or deeper water.	Time of day at which caught.	State of weather — sky, wind, sea.	Net used.	Small or big catch — maunds.	All or majority — full-grown or young.	Stomach contents.	Milt and roe abundant or no; young in womb.	Sale-price, fresh; salted.	Other fishes most plentiful in the yard.	Other points which may occur to the observer.
1	2	3	4	5	6	7	8	9	10	11	12	13	14

(Signed) EDGAR THURSTON,
Superintendent, Madras Government Museum.

ORDER—No. 462, Educational, dated 14th July 1899.

Recorded.

2. The report on the administration of the Museum for the year 1898–99 submitted by Mr. Thurston is interesting and satisfactory.

3. The thanks of Government are due to the ladies and gentlemen and institutions mentioned in the report for their contributions of books and articles of interest made to the Museum and the Connemara Public Library.

4. The number of copies of the report asked for by Mr. Thurston will be forwarded to him by the Superintendent, Government Press.

(True Extract.)

C. J. WEIR,
Ag. Secretary to Government.

REPORT ON THE ADMINISTRATION

OF THE

GOVERNMENT MUSEUM AND CONNEMARA PUBLIC LIBRARY

FOR THE YEAR

1899-1900.

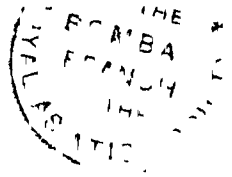
LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY.

BOMBAY BRANCH

OF THE

Royal Asiatic Society.

GOVERNMENT OF MADRAS.



EDUCATIONAL DEPARTMENT.

READ—the following paper :—

From EDGAR THURSTON, Esq., Superintendent, Government Museum, Madras, to the Secretary to Government, Local and Municipal Department, dated 7th July 1900, No. 26.

I have the honour to forward, for submission to His Excellency the Governor in Council, my report on the working of the Government Museum during 1899–1900, and to request that I may be supplied with 160 copies for distribution to other museums, etc.

ENCLOSURE.

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM FOR THE YEAR 1899–1900.

1. VISITORS.—The total number of visitors to the museum old building was 415,558 and to the new building 415,749 against 333,895 and 351,942 in the previous year.

	Old building.	New building.
Smallest number of visitors on any day, not a holiday ..	108	230
Largest " " " ..	1,603	1,540
Smallest number of visitors on Sunday	133	165
Largest " "	1,589	1,573

The largest number of visitors on a single day was 80,013 to the old, and 77,530 to the new building, at the feast of Pongal (15th January). The number of visitors on Sundays was 43,737 to the old, and 42,529 to the new building, giving averages of 841 and 818 per Sunday.

The number of gosha females on the days set apart for them was 4,783 against 3,627 in the previous year. The increase is mainly due to the fact that the Muhammadan festival Kuthba fell on a gosha day, when a large number of Muhammadan females visited the museum.

The museum was visited by the Ranee of Bobbili, for whom arrangements were made, similar to those on gosha days.

The Madras Teachers' Guild, and the ladies belonging to the Hindu Social Reform Association, were personally conducted round the museum by myself.

The visitors' book was used, in an attempt to prove an *alibi*, by one of the ring-leaders in the Sivakási riot. This is not the first occasion on which the book has been used for a similar purpose.

2. THEATRE.—The theatre was used on 22 occasions, as follows:—

Amateur Dramatic Society	9
Madras Musical Association (one concert in aid of the Transvaal War Fund)	5
Southern India Brahmo Samáj—Lectures on Shakespeare, by the Rev. F. Williams.	4
Teachers' Guild Educational Conference	2
Educational lecture, by Mr. G. Barlow	1
Madras School of Music Prize Distribution and Concert	1

3. GROUNDS.—The grounds remained under the management of the Agri-Horticultural Society. All the young trees, which have been planted in recent years, were attacked by a land mollusc (*Rhachis punctata*), whose eggs were deposited thereon, and hatched out in vast numbers in situations well shaded and close to the sap.

As an adaptation to modern requirements, bicycle stands were set up round the main entrances to the buildings.

4. ESTABLISHMENT.—The head taxidermist was dismissed from the service for insolvency, and involving several members of the museum staff in his financial difficulties. The taxidermist's department is, in consequence, in a state of absolute disorganisation. Two additional gallery attendants were entertained for the custody of the botanical and pre-historic collections.

5. ANTHROPOLOGY.—The examination of the Pathan, Sheik and Saiyad Muhammadans of Madras City was concluded. An enquiry was commenced in connection with the investigation of Eurasian school-boy physique, and the more important physical measurements of a number of boys at the Civil Orphan Asylum, and various schools in the City of Madras were recorded. At the request of the Medical officer, I visited the Chingleput Reformatory, with a view to the examination of the physique of the youthful offenders who have been sent there to be educated.

Mr. R. Bruce Foote was engaged, towards the close of the year, in supervising the reproduction, by the Survey department, of various articles in the pre-historic gallery, in connection with his forthcoming catalogue of the museum pre-historic collection.

Among additions to the ethnological collection may be mentioned—

(*a*) A fragment of a large earthen pot, with snake device, discovered during excavations for building purposes at Tándagudi on the Pulney hills;

(*b*) A collection of pottery found in the Kurumbranád taluk of Malabar;

(*c*) Skull and photographs of the Yanádis of the Nellore district;

(*d*) A series of photographs illustrating various incidents at a Toda funeral;

(*e*) A series of transparencies on glass (enlargements) of Todas, Irulas, Kádirs, Badagas, and Pariahs;

(*f*) Ceremonial bow, with mythical figures painted on it, from Travancore; and a musical instrument (villu) used by the Nairs of Malabar, especially during the Onam festival;

(*g*) Areca-palm caps worn by the lower classes in South Canara;

(*h*) Clothing, peasant jewellery, and photographs of the Gadabas of Vizagapatam, of whom the women wear very large rings in the ears, and a bustle made of some fibre collected in the jungle;

(*i*) Personal adornment of the Koragars of South Canara, who, until recent years, used to be dressed in a garment of leaves, now replaced by cotton cloth. The collection includes bracelets of bone and seeds of *Elæocarpus*; necklets of seeds of *Coix Lachryma;* waist belt decorated with bones and police and soldiers' buttons; and bead necklets with metal ear-scoop and tooth-pick pendant;

(*j*) Tomb-stones from the Laccadive islands, made of coral sandstone painted blue;

(*k*) Steel spurs, cunningly devised in various shapes, used in the popular sport of cock-fighting in South Canara.

A report was received from the Madura district, relating to a find of large earthen pots, which, the local natives believed, were used for the burial of "very old people, who refused to die."

In the village of Kondavedu, in the Kistna district, two idols, carved out of "hornblende granite," and representing Virabhadraswami and his consort, were unearthed, set up in a public place, and worshipped by pilgrims, the collections from whom amounted to Rs. 50 a week. Several claimants wished to acquire possession of the lucrative images, and a quarrel and filing of a criminal complaint ensued. My proposal that the idols should be acquired for the museum under the Treasure Trove Act had to be abandoned, on it being pointed out that the faith in the idols was very great, and their removal would be distasteful to the Hindu community. On the occasion of a visit of the Deputy Collector to the village, more than a thousand people came in to worship them, and the pilgrims in a body asked him to recommend their retention on the spot.

From the Kistna district were received some old gold ornaments (necklet ?) of excellent design and workmanship, which were found, in a fragmentary condition, together with coins, in a small iron pot enclosed within an earthen pot. The treasure was discovered by coolies, while excavating near the surface for building purposes.

The proof-sheets of one of the Bulletin series, containing a detailed account of the Nambutiris of Malabar, by Mr. F. Fawcett, and a note on the Mala Védars of Travancore, by Mrs. J. W. Evans, were in an advanced stage at the end of the year. The latter are an interesting tribe, inasmuch as, like the Kádirs of the Anaimalai hills, they practise chipping of the incisor teeth.

6. Numismatics.—A forgery of a gold Roman aureus, found in the Kistna district, was acquired under the Treasure Trove Act. Concerning this coin Mr. Rapson, of the British Museum, writes as follows: "It is interesting in many respects. It is a copy of an aureus of Faustina, the elder, wife of Antoninus Pius (A.D. 138—161), undoubtedly, so far as the obverse goes. With regard to the reverse type—the three standing figures—it is something like that of a coin of Faustina I, with the inscription Vota Pvblica, which has three standing figures; but two of these are females, and one only is male. Moreover, your coin has on the reverse a mint-mark (perhaps a corruption of Conob), which belongs to a period later than that of Faustina I. All one can say is that the coin is undoubtedly an Indian imitation of a Roman aureus of Faustina I, influenced probably by other Roman coins of a later date. Whether the imitation is ancient or modern, is a question not so easy to answer. There seems no reason why it should not be ancient, except, perhaps, that the colour of the gold is somewhat lighter than is usually the case with ancient Indian gold." From the Kistna district were also received rupees of the Moghul Emperors Aurangzib, Bahádur, and Kám Bakhsh (Hyderabad mint).

To Dr. T. Bloch, Honorary Philological Secretary, Asiatic Society of Bengal, I was greatly indebted for the identification of a large number of Moghul coins, the arrangement of which series was completed. While going through the mass of silver coins, I came across a considerable number of rupees of the Imtiyázgarh (Adóni) mint, struck during the reigns of Muhammad, Alamgír, and Sháh Alam, and a series of rupees bearing the name of the mint town Qamarnagar, struck by Muhammad Sháh. This, Dr. Bloch writes, "is a new mint, and appears to be a place in the district of Meerut, North-Western Provinces, which is now called Kamaruddinnagar or Kumruddinnagar. It is a small place situated on the Ganges, with a ghat and famous ferry (*vide* Hunter, 'Imperial Gazetteer' and 'North-Western Provinces Gazetteer'). The name seems to be derived from Qamar-ud-din Khán, the famous Vazir of Muhammad Sháh."

A series of four-anna pieces (bákiri) of Tipu Sultán, of Seringapatam mint, found together with a number of French and English Arkát rupees in the Erode taluk of the Coimbatore district, was added to the collection and distributed to other museums. From the Cuddapah district a number of gold rupees of Ahmad Sháh were received.

To Mr. A. Rea, of the Archæological Survey, and Mr. L. Vibert, my thanks are due for placing at my disposal a number of miscellaneous South Indian coins (mostly copper), which will be of great use in connection with the catalogue of South

Indian coins, which is now under preparation. The manuscript thereof is in an advanced stage, and a large number of plaster casts of the coins have been prepared in connection with the full illustration of the catalogue.

The following series have been arranged in the new coin safes, where they are available for study by those interested in numismatics:—

Alwar.
Andaman token.
Andhra.
Arakan.
Assam.
Boondee.
Buddhist, South India.
Carnatic Nawábs.
Ceylon.
Delhi Sultáns.
English East India Company.
Gadiya.
Ganga.
Gupta.
Hyderabad.
Indo-Danish.
Indo-Dutch.
Indo-French.
Indo-Greek and Scythic.
Indo-Portuguese.
Indo-Sassanian.
Indore.
Jaipur.
Jodhpur.
Kadamba.
Kalachuri.
Kanauj.
Kusans.
Moghul.
Mysore.
Oudh.
Pudukota.
Punch coins, or puránas.
Roman imperial (found in South India).
Taxila.
Travancore.
Venetian sequins (found in South India).
Western Satraps.

7. Art Gallery.—A new departure was made by the exhibition of paintings (some the property of the Fine Arts Society) by Native artists in Southern India, which are of interest as showing the great progress which has been made in recent years, and the advance over the old style of portrait-painting with abundant introduction of gold-leaf. An excellent landscape, by Mr. C. Raja Raja Varma entitled "The Lohagād, one of Sivaji's mountain fastnesses", was acquired by purchase.

Among the additions may be noted: (*a*) cocoanut carvings from Karkal in South Canara; (*b*) a damascened (koft) casket made at the School of Arts, Trivandrum; (*c*) a selection from the dress-service (Worcester china) of the former Governors of Fort St. George; (*d*) pith (*Æschynomene aspera*) model of a Hindu temple, by C. T. Sunkaram Pillai of Tanjore, (*e*) ivory carvings by the artisans of His Highness the Eliya Raja of Travancore, representing Vishnu at the deluge, Venugopál Krishna, deer, &c. As curiosities of Native art work, resulting from European influence, may be mentioned the Lion of Lucerne, carved in ivory, and the Laocoon in sandalwood.

8. Economic and Botanical.—Larvæ of a moth (probably *Heliothis armigera*), which were destroying the paddy (rice) seedlings, were received from the Chingleput and Tanjore districts. As a means of destroying them, the villagers dried up some of the seed-beds, without allowing water into them, and this, owing to the heat of the sun, destroyed them effectually. The villagers were, it was reported, "joyful with the belief that the insects have been found by long experience to be the forerunners of heavy flood, and that they made their appearance some twenty years ago, and were followed by heavy flood." From the Coimbatore district were received larvæ which were damaging the tender sugar-cane plants. The pest was identified at the Indian Museum, Calcutta, as being probably *Diatræa saccharalis*, the sugar-cane borer moth, which also attacks cholam (*Sorghum vulgare*) and maize (*Zea Mays*). From the South Arcot district were received the larvæ of a moth belonging to the family *Arctiidæ*, which were destroying the ground-nut crop round Panruti. Insects which were destroying the surgar-cane crop in the Chandragiri taluk of the North Arcot district were identified at the Indian Museum as *Dictyophora pallida* (lantern-flies).

Specimens of the cochineal insect, which is found living on the "prickly-pear" (*Opuntia Dillenii*) in Southern India, were sent for examination to Mr. E. E. Green, of Ceylon, who writes that they agree in every particular with his *Coccus cacti* var. *ceylonicus*, and differ from the type in the form and disposition of the tubular spines on the surface of the body.

Three dados of Indian timbers, made at the College of Engineering, Madras, and exhibited at the Fine Arts Society Exhibition, were added to the Economic section. The timbers used in their construction were—

Ebony (*Diospyros Ebenum.*)	Trincomallee wood (*Berrya ammonilla.*)
Red cedar (*Cedrela Toona.*)	Teak (*Tectona grandis.*)
White cedar (*Chickrassia tabularis.*)	Padauk (*Pterocarpus indicus.*)
Rosewood (*Dalbergia latifolia.*)	Irul (*Xylia dolabriformis.*)

A series of specimens were received from the Kistna district, illustrating the evolution of a Koudapille toy from the seasoned wood (ponuku) to the completed doll. After the wooden figure has been roughly shaped, it is held over the fire in a goldsmith's chatty with bamboo splits spread over it, in order to dry up the moisture in the wood, which is worked a few days after it has been cut. The head-dress (turban) and feet are made of tamarind seed mixed with resin and fine teak saw-dust.

On behalf of Mr. G. P. Rouffaer, of the Hague, an enquiry was set on foot concerning the "South Dekhan (Tamil) art of wax and colour drawing, especially in connection with and compared with that in use in Java." The fundamental idea, practised in Java, as well as on the coast of Kling, is, as Mr. Rouffaer points out, "to prevent, by means of local application of wax in a molten state, calicoes from taking the dye in those places whilst in the subsequent dyeing bath. When the dyeing in the dyeing tub is finished, the wax is removed by simply dipping the calico in boiling water, and the spots previously covered with wax will be found to be white; or, if they were coloured already before being covered with the wax, they will be found to be in the same unaltered colour."

The name Kling (or Kaling), it may be noted, is applied, in the Malay countries, including the Straits Settlements, to the people of Peninsular India who trade thither or are settled in those regions.

Great progress was made with the preparation of the botanical index series, which is now systematically arranged, and ready for the purpose of study by students and others.

Its main object is to act as a supplement to the text-books in illustrating the general morphology of both Phanerogams and Cryptogams. The collection, which commences with the germination of the seed, and ends with the lichens, algæ, and fungi, is largely made up of carefully selected dried specimens, mounted on herbarium sheets and framed, with full descriptive notes drawing attention to the points which they are intended to illustrate. The frames are so arranged that they can be readily unhooked, and lent for the purpose of object lessons in elementary schools. The specimens collected locally in the City of Madras were largely supplemented by additions made in the temperate climate of the Palni hills, which were explored at various elevations from 7,000 to 4,000 feet during a prolonged tour, with Kodaikánal as the centre. In addition to the work in collection with the index series, the herbarium-keeper, Mr. K. Rangachari, was engaged in the collection of a series of herbarium specimens, illustrating the flora of Madras City and its environs. An account thereof has been drawn up, and will be published hereafter.

The North Indian plants, belonging to the museum herbarium, which were returned to the museum on the death of Mr. M. A. Lawson, were again sent on loan to the Government Botanist at Ootacamund.

9. MINERALOGY.—Among the additions to the mineral gallery may be noted :—

(*a*) A series of building stones, used for architectural purposes in the Mysore province;

(*b*) Variegated clays from Oopookundur, near Amanabrolu on the East Coast Railway, used for building purposes, and in the construction of the railway staff quarters and stations;

(*c*) Specimens of French and Irish bauxite, for comparison with the series of corundum from the Madras Presidency; and of corundum from the Chittoor taluk of the North Arcot district, which is said to be exported to Singapore and China.

(*d*) A series of rocks from the Coorg province and Nellore district, presented by the Geological Survey of India.

(*e*) A series of framed maps, illustrating Indian geology, mineral products, and meteorological conditions.

(*f*) Asbestos from the Mysore province.

(*g*) Polished specimens of green quartzite with fuchsite scales, from the hills near Namakallu in the Bellary district. It is said to occur in fairly large masses, but is difficult to work up except in small slabs.

From Messrs. Cameron & Co. a specimen was received from an upheaval which had recently (August 1899) appeared out at sea about 2 miles from Tangáchéri near Quilon on the Travancore coast, and had risen to about 3 feet above sea level. Concerning this Mr. T. H. Holland writes to me: "It comes presumably from a mud-bank, similar to those described by Lake (Rec. Geo. Surv. Ind., XXIII, 41, 1890), and which are known in that locality to rise occasionally and temporarily above sea level to a height of 3 or 4 feet. The sample is a sand composed of minute quartz and other mineral grains, mixed with fragments of shells and an abundance of foraminiferal tests, plastered into marine worm-tubes. There is nothing unexpected in the appearance of such an 'upheaval' off the Quilon coast."

10. Industrial Monograph.—As a companion to my monographs on the cotton fabric and woollen industries, a monograph on the silk industry of the Madras Presidency was, under instructions from the Government of India, prepared and issued. The main points dealt with therein are—

(*a*) The castes to which the weaving community belong.

(*b*) The localities at which the industry is carried on.

(*c*) The number of looms and weavers at different centres.

(*d*) The condition of the industry, whether flourishing or declining; and, if the latter, the causes—European competition, plague, famine, &c.—to which the artisans attribute the decline.

(*e*) The nature of the fabrics made.

(*f*) The market in which the fabrics are sold, *e.g.*, whether the trade is local within the district, or spreads beyond its limits.

(*g*) From what place the silk is obtained.

(*h*) The method of weaving (always on hand looms).

(*i*) The reason why aniline and alizarine dyes, if used, are preferred to indigenous vegetable colours.

The greatest exports of silk piece-goods from the Madras Presidency are shown by the returns to be to Rangoon, the trade with which place is fitful and oscillating, though it has increased appreciably during the last six years. The trade names, by which the exported silk goods are known in the market, are: comboyem, cuthney, dhootee, handkerchiefs, kylee, loongey (or lungi), narmady, sari, soosi, sylass, thavany, and women's cloths. The imports of silk piece-goods from Great Britain have increased to a marked extent in recent years, the value thereof from 1894–98 being Rs. 2,48,246 against Rs. 1,34,493 from 1889–1893.

In an address presented to His Excellency the Governor of Madras in 1897, the Saurashtra weavers of Madura stated that "the masses who eke out their livelihood by weaving and dyeing have not a scientific knowledge of the industries which they practise. We, therefore, deem it necessary to suggest that the establishment of textile schools and technical dye-houses for imparting instruction in the said industries will be an effective means of encouraging them, and the means of ameliorating the condition of the industrial classes." The same community recently submitted to the Government a memorial to the effect that "as the backward Saurashtra community have not the requisite capital of half a lakh of rupees for imparting to their members both general and technical education, the Saurashtra Sabha, Madura, suggests that a lottery office may be kept for collecting shares at one rupee each from the general public," on the understanding that after deducting working expenses, two-thirds be set apart for educational purposes, and one-third for prizes. In passing orders on this sporting scheme, the Government stated that it is not prepared to authorise the lottery.

11. Sea-fisheries Investigation.—In connection with this investigation, which is controlled by me on behalf of the Board of Revenue, a systematic inspection of all the more important and many of the minor fish-curing yards of Malabar and South Canara, from Tanur to Malpe, was made in November, in which month fishing operations are actively carried on. A full account thereof will be published in the Bulletin series and it will suffice, for the moment, to note that the main cry, all along the coast, was for "sardines," more especially the nallamathi (*Clupea longiceps*), large shoals of which have ceased to appear during the last few years with a resultant dearth of fish manure for planters, and fish-oil. Many deputations were received in connection with the employment, by the minority of fishermen, of what is known locally as the thattu vala (tapping net), the use of which is accompanied by shouting and beating the sides of the boats with sticks, with the result that "the tremendous noise which is the sequel of the innovation, is just sufficient to scatter the shoals of all the kinds of fishes that are near the shore, and to scare them away to the depths, where we do not venture in our small boats." The fact that, in spite of the use of the offending thattu vala, very large catches of shoaling mackerel (*Scomber microlepidotus*) were being secured was attributed to the fact that the mackerel is a bold fish, not easily frightened. The most extensive fishing operations which I witnessed were being carried on at Malpe in South Canara, where the Ratnagiri boats from the Bombay Presidency were daily securing large hauls of seir (*Cybium guttatum* and *Cybium commersonii*) in the "deep sea," while the smaller local boats were engaged in securing very heavy catches of mackerel in the shallow water near the shore. The best catches, as recorded in the Malpe yard returns, were as follows:—

Date.		Big.	Small.
		MDS.	MDS.
October	30	159	593
November	4	224	2,154
„	5	404	1,346
„	6	269	922
„	7	233	430
„	9	468	444
„	12	162	1,025
„	14	732	532
„	17	162	1,235
„	18	61	1,144
„	19	4	1,945

The big fishes were nearly all seir, and the small mackerel. On November 19th the Ratnagiri fishermen were not out, as they ceased operations on account of the moonlight, and beached their boats, so as to give them a coating of fish-oil. A maund, it may be noted, is equivalent to 82 $\frac{2}{7}$ lbs. avoirdupois.

12. Natural History (Animal).—A large number of game birds brought to the Madras market were added to the existing collection. Since the opening of the East Coast Railway, birds killed or caught at a distance of 40 or 50 miles from Madras are brought in by train and sold in the market, and it is not unusual to see birds previously rarely seen therein offered for sale. Among these may be mentioned—

Anthropoides virgo—demoiselle crane.
Platalea leucorodia—spoonbill.
Ardea manillensis—eastern purple heron.
Mareca penelope—wigeon.
Myroca ferina—pochard or dun-bird.
„ ferruginea—white-eyed duck.

A skin of the Malay Bittern (*Gorsachius melanolophus*) was received from Malabar. This bird is recorded (Faun. Brit. Ind.) as being "a rare bird in Ceylon, as well as in the hill forests near the Malabar Coast of India."

During my tour on the Palni hills a large number of birds and reptiles, as well as mammals and lepidoptera, were obtained. The mammals included the large brown flying squirrel (*Pteromys oral*), which abounds among the shola trees in certain localities on the higher ranges of the Palnis, the striped-necked mungoose (*Herpestes vitticollis*) and the little leopard cat (*Felis bengalensis*).

During the tour on the western coast a collection of the more important edible fishes, and sharks' fins and fish-maws as prepared for export, was made, and a large collection of shallow water mollusca was made with the assistance of the dredge. A very large ray (*Trygon sp.*), harpooned off Malpe in South Canara, was preserved. As she lay dying on shore, she gave birth to twelve young ones, which were promptly removed to the fish-curing yard and salted.

In connection with the study of the embryology of the elasmobranchs, a number of shark embryoes were obtained *in utero* and preserved in spirit.

Interesting collections of the land-shells of the Anaimalai hills and Ceylon were acquired as donations.

A series of skeletons, illustrating the various orders of the birds of Southern India, was prepared and set up.

A series of photographs, illustrating the elephant keddah operations in Mysore, and reproductions of photographs from Muybridge's "Animals in motion," were exhibited.

Among the additions to the reptilian series were a model of the head of a poisonous snake, illustrating the mechanism of the poison apparatus; lizards with eggs *in situ*; skulls of crocodiles labelled to illustrate the osteology; and a variety of framed pictures illustrating structure and osteology. The exhibited pictures and photographs in the various galleries are, I notice, very popular with the visitors, both educated and uneducated.

13. Live Animals.—The small collection of live animals in the main hall continued to be a source of great attraction. The large-spotted eagle (*Aquila maculata*) died as the result of an abscess in the throat. For several months a pseud-albino sparrow (*Passer domesticus*) was exhibited. Among the additions which were alive at the end of the year were:

Gallus sonnerattii—grey jungle-fowl.
Excalfactoria chinensis—blue-breasted quail.
Palæornis torquatus—rose-ringed paroquet.
„ cyanocephalus—blossom-headed paroquet.
Emberiza luteola—red-headed bunting.
Gongylophis conicus—sand-snake.
Helicops schistosus-fresh-water snake.

14. Connemara Public Library.—The total number of readers during the year was 14,105 against 13,345 in the previous year—

Smallest number of readers on any day	.. ..	..	10
Largest „ „	.. ..	..	149
Smallest „ Sunday ..	.. ..	..	24
Largest „ „ ..	.. ..	..	112

The number of books given out was 17,236 against 16,677 in 1898-99. The following tabular statement shows the number of applicants for books and of the volumes given out during the last two years:—

Months.	1898-99.		1899-1900.	
	Number of applicants for books.	Number of volumes given out.	Number of applicants for books.	Number of volumes given out.
April	815	1,307	1,330	1,886
May	736	1,151	916	1,420
June	655	1,115	1,126	1,583
July	836	1,405	992	1,444
August	890	1,295	910	1,257
September	926	1,322	981	1,347
October	930	1,375	833	1,185
November	844	1,277	795	1,172
December	1,127	1,828	1,112	1,892
January	1,102	1,496	1,079	1,484
February	1,134	1,682	813	1,312
March	1,078	1,424	901	1,254
Total ..	11,073	16,677	11,788	17,236

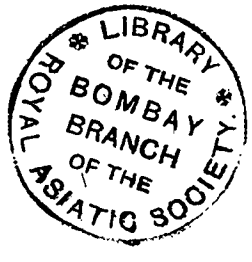
The total number of standard works added to the library was 278, of which 239 were acquired by purchase and 39 presented (*vide* Appendix D).

As a rough indication of the class of literature resorted to by readers, I append a list of books issued during the year under each of the subject-catalogue heads:—

Dictionaries; encyclopædias, etc.	1,863
Anatomy; biology; natural history; zoology	579
Anthropology; folk-lore	621
Archæology; architecture	174
Arts; industries	245
Atlases and maps	120
Botany; arboriculture; horticulture	279
Belles lettres	547
Chemistry; chemical industries; agriculture	191
Classics	256
Economic products and economic entomology	57
Education; ethics; logic; metaphysics; philosophy; political economy.	1,180
Exhibitions	84
Forestry; timbers	35
Geography; physical geography; physiography	100
Geology; palæontology	63
History	769
Jurisprudence	150
Microscopy	25
Medicine; medical jurisprudence; pathology; pharmaceutics; surgery; veterinary	283
Mineralogy; metallurgy; petrology	86
Natural philosophy	664
Numismatics; heraldry; medals	248
Philology; epigraphy	194
Photographs	45
Physiology	117
Public health	339
Religion	592
Sports and games	342
Travels and foreign countries; voyages	371
Fort St. George Gazette (other than current issues)	690

In Appendix C is given a statement showing the number of readers in every month during each hour of the working day.

15. VALUABLE STOCK.—The necessary inventory of stock was maintained, and duly checked. The collections were all in good order at the end of the year.



APPENDIX A.

Museum Old Buildings.

VISITORS from 1st April 1899 to 31st March 1900 on week days.

1899-1900.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Sinhalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	1,416	432	551	1,421	15	..	16	19	1	..	17	15
May	1,779	752	280	1,726	16	..	36	60	..	1	23	10
June	1,630	685	197	2,084	7	..	11	15	..	..	12	..
July	1,761	575	373	1,760	6	..	42	15	..	..	19	2
August	1,802	559	246	2,026	4	..	49	11	..	..	26	9
September	1,678	491	196	1,791	10	..	13	17	..	..	25	3
October	1,180	400	194	1,252	3	..	9	18	..	..	28	2
November	1,515	529	200	1,390	7	..	14	16	..	..	31	2
December	2,563	606	364	1,925	11	..	32	26	..	..	37	9
January	2,794	1,042	351	2,375	23	3	47	46	..	..	44	2
February	1,435	424	284	1,368	13	2	18	18	..	..	22	2
March	1,240	398	198	1,343	6	..	17	14	..	..	16	..
Total ..	20,793	6,893	3,434	20,461	121	5	304	275	1	1	300	56

1899-1900.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
April	3,903	14,486	18,389	10,480	7,909	18,389
May	4,683	17,545	22,228	13,305	8,923	22,228
June	4,641	18,767	23,408	12,861	10,547	23,408
July	4,553	19,743	24,296	13,634	10,662	24,296
August	4,732	20,790	25,522	14,501	11,021	25,522
September	4,224	15,635	19,859	10,951	8,908	19,859
October	3,086	14,724	17,810	9,869	7,941	17,810
November	3,704	17,005	20,709	12,557	8,152	20,709
December	5,573	17,019	22,592	14,498	8,094	22,592
January	6,727	128,323	135,050	59,917	75,133	135,050
February	3,586	17,281	20,867	11,828	9,039	20,867
March	3,232	17,859	21,091	11,626	9,465	21,091
Total ..	52,644	319,177	371,821	196,027	175,794	371,821

Museum Old Buildings.

VISITORS from 1st April 1899 to 31st March 1900 on Sundays.

1899-1900.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Sinhalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	324	115	113	246	2	..	..	2	..	..	7	..
May	381	86	33	259	..	..	..	3	..	..	2	..
June	455	132	53	408	..	..	4	..	..	..	6	1
July	486	132	47	508	3	..	6	4	..	..	8	..
August	495	126	66	433	2	..	11	..	..	..	7	..
September	337	109	52	336	..	..	3	6	..	..	7	..
October	326	99	47	294	..	..	..	7	..	..	7	..
November	399	112	49	535	2	..	2	..	..	..	7	..
December	626	132	56	552	2	..	16	9	..	..	15	2
January	397	94	66	388	..	1	7	8	..	..	6	..
February	409	94	70	300	4	..	7	4	..	..	5	..
March	334	94	39	263	2	..	1	3	..	..	6	..
Total ..	4,969	1,325	691	4,522	17	1	57	46	..	..	83	3

1899-1900.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
April	809	1,991	2,800	1,870	930	2,800
May	764	2,460	3,224	1,949	1,275	3,224
June	1,059	3,232	4,291	2,558	1,733	4,291
July	1,194	4,035	5,229	3,097	2,132	5,229
August	1,140	3,246	4,386	2,789	1,597	4,386
September	850	3,004	3,854	2,317	1,537	3,854
October	780	2,026	2,806	1,761	1,045	2,806
November	1,106	2,493	3,599	2,278	1,321	3,599
December	1,410	3,310	4,720	3,251	1,469	4,720
January	967	2,329	3,296	2,232	1,064	3,296
February	893	2,171	3,064	2,083	981	3,064
March	742	1,726	2,468	1,548	920	2,468
Total ..	11,714	32,023	43,737	27,733	16,004	43,737

Museum New Buildings.

Visitors from 1st April 1899 to 31st March 1900 on week days.

1899-1900.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Sinhalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	1,365	267	179	1,618	7	2	12	67	1	5	32	5
May	1,540	366	114	1,690	2	3	19	89	..	5	33	5
June	1,881	369	122	1,952	13	7	38	88	2	6	44	14
July	1,931	380	216	1,950	11	3	35	90	1	7	45	15
August	1,815	385	167	2,059	13	8	25	108	..	7	53	15
September	1,645	330	159	1,796	7	..	15	76	..	6	48	13
October	1,173	240	120	1,332	8	2	15	68	..	2	28	9
November	1,325	305	119	1,590	8	1	6	83	..	2	53	8
December	2,092	502	206	2,140	19	14	37	119	..	10	43	18
January	2,340	909	234	3,220	26	9	67	198	..	19	62	29
February	1,255	260	202	1,548	5	5	39	84	..	14	33	15
March	908	328	157	1,523	4	2	18	105	..	2	25	8
Total ..	19,270	4,641	1,995	22,418	128	66	326	1,175	4	85	499	154

1899-1900.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
April	3,560	13,148	16,708	9,917	6,791	16,708
May	3,866	17,593	21,459	12,606	8,853	21,459
June	4,536	19,733	24,269	14,280	9,989	24,269
July	4,684	21,315	25,999	15,038	10,961	25,999
August	4,655	21,872	26,527	15,335	11,192	26,527
September	4,095	19,255	23,350	13,520	9,830	23,350
October	2,997	13,960	16,957	9,730	7,227	16,957
November	3,500	15,420	18,920	10,961	7,959	18,920
December	5,200	22,243	27,443	16,200	11,243	27,443
January	7,113	125,168	132,281	61,565	70,716	132,281
February	3,460	17,210	20,670	11,500	9,170	20,670
March	3,080	15,557	18,637	10,480	8,157	18,637
Total ..	50,746	322,474	373,220	201,132	172,088	373,220

Museum New Buildings.

VISITORS from 1st April 1899 to 31st March 1900 on Sundays.

1899–1900.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Sinhalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April	360	58	63	286	1	1	2	13	..	..	5	..
May	281	70	18	277	..	..	..	14	..	..	5	..
June	310	75	43	341	1	1	2	18	..	..	7	3
July	520	95	26	565	3	13	9	19	..	2	11	1
August	390	120	48	465	2	..	6	16	..	1	8	2
September	370	70	51	368	..	1	2	20	..	2	8	3
October	263	48	23	296	..	..	..	10	..	..	4	1
November	370	120	46	435	2	..	7	19	..	3	7	3
December	575	100	41	554	5	5	16	22	..	1	10	5
January	371	95	38	357	3	6	3	6	..	..	4	2
February	275	50	104	416	2	..	1	16	..	6	8	6
March	260	40	20	339	1	1	7	22	..	..	8	1
Total ..	4,345	941	516	4,699	20	28	55	195	..	16	80	27

1899-1900.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
April	789	1,978	2,767	1,778	989	2,767
May	665	2,443	3,108	1,948	1,160	3,108
June	801	2,942	3,743	2,185	1,558	3,743
July	1,264	3,851	5,115	3,050	2,065	5,115
August	1,058	3,214	4,272	2,651	1,621	4,272
September	895	2,972	3,867	2,342	1,525	3,867
October	645	2,115	2,760	1,769	991	2,760
November	1,012	2,527	3,539	2,263	1,276	3,539
December	1,335	3,358	4,693	3,206	1,487	4,693
January	880	2,369	3,249	2,171	1,078	3,249
February	884	2,106	2,990	2,160	830	2,990
March	694	1,732	2,426	1,530	896	2,426
Total ..	10,922	31,607	42,529	27,053	15,476	42,529

APPENDIX B.

DONATIONS, 1899–1900.

Appu Menon, Mr. K.—
Musical instrument (villu) used by Nairs, especially during the Onam festival.

Austin, Mr. R. F.—
Laccadive tomb stones.

Best & Co., Messrs —
Samples of Irish and French bauxite.

Bobbili, Kumara Raja —
Collection of clothing and ornaments of the Gadabas of Vizagapatam.

Bull, Mr. H. N.—
Tourmaline and mica, Gódávari district.

Burns, Mr. C. H.—
Insect (Rhynchota).

Chatterton, Mr. A.—
Dados of Indian timbers.

Clifford, Mr. W. J.—
Crested serpent-eagle (Spilornis cheela).

Duncan, Mr. P.—
Clay used for building Stone from Oopookundur, Kistna district.

Editor, Times of Malabar—
Abnormal cocoanut.

Ettiyapuram, Raja—
Twin eggs laid by a fowl.

Geological Survey of India—
Collection of rock specimens from Nellore district.

Gill, Mr. A. E.—
Swimming crab (Matuta victrix).

Gillman, Mr. H. W.—
Photographs of Khonds.

Govinda Menon, Mr. P.—
Saw of saw-fish.

Higgens, Mr. A. W. B.—
Palm-leaf caps, South Canara.

Irwin, Mr. H. A.—
Polished slabs of ornamental stones used for building purposes, Mysore.

Joseph, Mr. J.—
Scorpion, with young.

Kurumbranát, Tahsildar—
Earthen pots discovered underground in Kurumbranát taluk, Malabar.

Levaux, Revd. J. W.—
Skin of Python molurus (rock-snake).

Moir, Mr. T. E.—
Steel spurs for cock-fighting, South Canara.

Mulumudy Pitchi Reddy—
Mica with triangular markings.

Municipal Commission, Madras—
Malayan Bear.
Lion cubs.
Leopard (Felis pardus).
Orang-utan (young).
Indian Ratel (Mellivora indica).
Cockatoo.

North-Western Provinces and Oudh Government—
Gold coin (Jajalla Deva).
Rupees of Muhammad Shah, (Benares Mint).
Moghul coins (Akbar and Jahangir).
Silver coins (Moghul).

Pana, Mr. J. G.—
Insect (Nepa).

Porter, Mrs.—
Collection of land shells from the Anaimalai hills.

Price, Sir F.—
Kauri gum and charcoal from New Zealand.

Pudukkóttai, Dorai Raja—
Squirrel (Sciurus maximus).

Rajagopalachariar, Mr. K.—
Travancore ceremonial bow.

Raman, Mr. M.—
Malabar knife.

Ranga Row, Mr. T.—
Skull and photographs of Yanádis.

Rea, Mr. A.—
Miscellaneous South Indian coins.

Royal Asiatic Society (Bombay Branch)—
Mogul coins.
Silver; Akbar, Shah Jahan, Aurangzib.

Copper: Aurangzib, found in the village of Jafrabad, Godhra taluka, Punch Mahals district.

Silver Hindu punch-marked coin found in the Kalwan taluka, Nassik district.

Royal Botanical Gardens, Calcutta—

97 sheets of herbarium specimens of flowering plants.

Saldhana, Mr.—

Prehistoric pottery.

Fragment of urn with snake device, found while excavating at Tandagudi, Palni hills.

Schmidt, Mr. T. W.—

Malay bittern (Gorsachius melanolophus).

Scott, Mrs. S. P. C.—

Saw of saw-fish.

Sherman, Mr. C. M.—

Fish (Antennarius sp.), Malabar.

Turner, Mr. H. G.—

Magnesite from "Chalk Hills," Salem.

Vibert, Mr. L.—

Miscellaneous copper coins of South India.

Wood, Mr. C.—

Snakes—

Trimeresurus anamallensis, Do. macrolepis } Anamalai hills.

Young, Mr. J.—

Mica from the Nellore district.

APPENDIX C.

STATEMENT showing the total number of readers in Library in every month during each hour of the day, 1899–1900.

	7—8	8—9	9—10	10—11	11—12	12—1	1—2	2—3	3—4	4—5	5—6	Total.
April	110	135	130	130	128	90	126	108	170	156	47	..
May	118	82	106	85	87	70	61	89	98	124	55	..
June	125	109	118	91	111	75	89	84	133	124	53	..
July	96	120	134	101	85	98	75	126	107	121	47	..
August	79	104	115	113	102	99	84	146	125	142	57	..
September	81	68	90	111	93	77	65	99	103	103	42	..
October	57	83	79	63	75	87	67	97	114	73	26	..
November	55	99	115	83	117	84	80	114	123	61	20	..
December	75	103	126	153	110	118	192	185	215	179	20	..
January	99	135	187	221	160	122	167	201	276	232	54	..
February	74	120	157	123	119	107	97	125	115	125	30	..
March	118	104	115	119	103	78	91	109	176	148	25	..
Total ..	1,087	1,262	1,472	1,393	1,290	1,105	1,194	1,483	1,755	1,588	476	14,105

APPENDIX D.

LIST OF BOOKS ADDED TO THE LIBRARY.

Donations.

Addis, W. E.—Christianity and the Roman Empire, 1893, 8vo.

Bather, F. A.—Some Colonial Museums. Reprint, 1894, 8vo.

Cameron, P.—Hymenoptera Orientalia, or Contributions to a Knowledge of the Hymenoptera of the Oriental Zoological Region. Reprint. *Manchester*, 1899, 8vo.

Castle, F.—Elementary practical Mathematics, 1899, 8vo.

Edser, E.—Heat: for advanced Students. *Illust.*, 1899, 8vo.

Fay, E. A.—Marriages of the Deaf in America. *Washington*, 1898, 8vo.

Friedlaender, B.—Nochmals der Palolo und die Frage nach unbekannten Kosmischen Einflüssen auf Physiologische Vorgänge. Reprint. *Leipzig*, 1899, 8vo.

Friedlaender, B.—Ueber den sogenannten Palolowurm. Reprint. *Leipzig*, 1899, 8vo.
——— Verbesserungen und Zutsätze zu meinen Notizen über den Palolo. Reprint. *Leipzig*, 1899, 8vo.
Furness, W. H.—Folk-lore in Borneo. A sketch. *Illust., Wallingford, Pennsylvania.*, 1899, 8vo.
——— Glimpses of Borneo. Reprint, 1896, 8vo.
——— Life in the Luchu Islands. *Illust.*, Reprint, *Philadelphia*, 1899, 8vo.
Gannet, W. C.—Three Stages of a Bible Life, 1892, 12mo.
Gleeson, J. M.—Catalogue of Trees, Shrubs, and Herbaceous Plants in the Gardens of the Agri-Horticultural Society of Madras and in the Neighbourhood, 1898, 8vo.
Godwin-Austin, H. H.—Land and freshwater Mollusca of India. Part 9. Text and Plates, 1899.
Hadley, H. E.—Magnetism and Electricity for Beginners. *Illust.*, 1899, 8vo.
Hajee Sullaiman Shah Mahomed.—Journal of Tours round the World. *Illust., Bombay*, 1895, 8vo.
Hall, H. S and F. H. Stevens.—Elementary Course of Mathematics, 1899, 8vo.
Havell, E. B.—Art Education in India, and the best Means of arresting the Decay of Indian Art. *Calcutta*, 1899, 8vo.
Heinig, R. L.—Glossary of Botanic Terms used in describing Flowering Plants. *Calcutta*, 1899, 8vo.
Hirst, J. C.—Is Nature cruel? Experiences of Big Game Hunters and others while under the Attack of Wild Beasts, 1899, 8vo.
Hooker—Icones Plantarum.—Fourth ser. vol. 7, Part I, 1899, 8vo.
Hultzsch, E.—South Indian Inscriptions, Vol. II, Parts 1–3 and Vol. III, Part 1.
LeBon, G.—Civilisation des Arabes. Translated into Urdu by Shamsul Ulama Syed Ali Bilgrami with Preface in English. *Illust. Madras*, 1898, 8vo.
MacCord, C. W.—Mechanical Drawing: Progressive Exercises and Practical Hints. *Illust. New York*, 1893, 4to.
Madugalle Siddhattha Théra.—Kawsilumina with a Paraphrase. By H. M. Parákrama Báhu, King of Ceylon. In Sinhalese. *Colombo*, 1899, 8vo.
Moore, F.—Lepidoptera Indica. *Illust.* Parts, 29 and 37—41.
Müller, F. Max.—Origin and Growth of Religion as illustrated by the Religions of India. Tamil Translation. *Madras*, 1898, 8vo.
Murdock, J.—Agricultural Reform in India by A. O. Hume, 1899, 8vo.
Santappa Chetty, B.—Handbook on the Uses of the Country and Bazaar Medicines of India, 2nd Edition. *Bangalore*, 1900, 8vo.
Seton-Karr, W. S.—Grant of Rothiemurchus: Memoirs of the Services of Sir John Peter Grant, G.C.M.G., K.C.B., 1899, 8vo.
Simmons, A. T. and L. M. Jones.—Elementary general Science. *Illust.*, 1898, 8vo.
Smith, C. and S. Bryant.—Euclid's Elements of Geometry, Books I and IV, 1899, 8vo.
Stein, M. A.—Notes on the Monetary System of Ancient Kâsmir. *Illust.*, Reprint, 1899, 8vo.
Thieullen, A.—Les véritables instruments usuels de l'age de la pierre. *Illust., Paris*, 1897, 8vo.
Todhunter, J.—Elements of Euclid. Revised by S. L. Loney, 1899, 8vo.
Turner, Sir W.—Contributions to the Craniology of the People of the Empire of India, Part I. Hill Tribes of North-East Frontier and the people of Burma, Reprint. *Illust.*, 1899, 4to.
Walch, G. T.—Engineering Works of the Kistna Delta: Descriptive and Historical Account. *Illust.*, 2 vols., *Madras*, 1899, 8vo.
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Purchases.

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Arnold, T. W.—The Preaching of Islam: History of the Propagation of the Muslim Faith, 1896, 8vo.
Asylum Press Almanac, 1900.
Atkinson, G. F.—Study of the Biology of Ferns by the Collodion Method. *Illust., New York*, 1894, 8vo.
Awdry, Mrs. W.—Early Chapters in Science: Natural History, Botany, Physiology, Physics and Chemistry. *Illust.*, 1899, 8vo.
Baker, J. G.—Handbook of the Fern Allies: Synopsis of the Genera and Species of Equisetaceæ, Lycopodiaceæ, Selaginellaceæ and Rhizocarpeæ, 1887, 8vo.
Ball, Sir R.—Story of the Sun. *Illust.*, 1893, 8vo.
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Barrarde, J.—Système silurien du centre de la Bohême, *Text and Atlas*, Vol. VII, Part 2.
Bateman, G. C.—Vivarium: Guide to the Construction, Arrangement and Management of Vivaria. *Illust.*, 8vo.
Beddard, F. E.—Book of Whales. *Illust.* [*Progressive Science Series.*] 1900, 8vo.
Berkeley, M. J.—Handbook of British Mosses. *Illust.*, 1863, 8vo.

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Bowhill, T.—Manual of Bacteriological Technique and special Bacteriology. *Illust.*, *Edinburgh*, 1899, 8vo.

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Burton, R.—Anatomy of Melancholy, 2 vols., 1806, 8vo.

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Cambridge Natural History.—Vol. VI, Insects, Part II, by D. Sharp, and Vol. IX, Birds by Evans, 8vo.

Campbell, D. H.—Lectures on the Evolution of Plants. *Illust.*, 1899, 8vo.

——— Structure and Development of Mosses and Ferns (Archegoniatæ.) *Illust.*, 1895, 8vo.

Carrington, B.—British Hepaticæ: Jungermannia, Marchantia, and Anthoceros. *Illust.*, Parts I—IV, 8vo.

Chisholm, G. G.—Handbook of Commercial Geography. *Illust.*, 1899, 8vo.

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Davis, J. and W.—Bird Stuffing and Mounting. *Illust.*, 8vo.

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Ellis, H.—The Criminal. *Illust.* [*Contemporary Science Series.*] 2nd edition, 1895, 8vo.

Fauna und Flora des Golfes von Neapel.—Asterocheriden by W. Giesbrecht, Monographie 25. *Illust.*, 1899, 4to.

Ferrier, D.—Localisation of Cerebral Disease. *Illust.* [*Gulstonian Lectures.*] 1878, 8vo.

Fielding, H.—The Soul of a People, 1898, 8vo.

——— Works: with Essay on his Life and Genius, 10 vol., 1821, 8vo.

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Fry, C. B.—Book of Cricket: Gallery of Famous Players. *Illust.*, 4to.

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——— Mechanics: elementary Text-book. [*Cambridge Natural Science Manuals.*] *Illust.*, 1897, 8vo.

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Harting, J. E.—British Animals extinct within Historic Times: with some Account of British Wild Cattle, 1880, 8vo.

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Herbart, J. F.—Letters and Lectures on Education. Translation, 1898, 8vo.

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Hoffmann, L.—Every Boy's Book of Sport and Pastime. *Illust.*, 1897, 8vo.

Hueppe, F.—Principles of Bacteriology. Translation. *Chicago*, 1899, 8vo.

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——— Hume: with Helps to the Study of Berkeley, 1897, 8vo.
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——— Scientific Memoirs. Edited by Michael Foster and E. Ray Lankester, vol. II, 1899.

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——— Mrs. Leicester's School, &c., 1890, 8vo.
——— Poems, Plays and Essays, 1895, 8vo.
——— Tales from Shakespeare, 1895, 8vo.

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Lubbock, Sir J.—Buds and Stipules. *Illust.* [*International Scientific Series*, 1899,] 8vo.
——— Hundred Books:—
Lewes—Biographical History of Philosophy.
Boswell—Life of Johnson.
Dickens—David Copperfield.
Lytton—Last Days of Pompeii.
Aristotle—Ethics.
Moliére—Plays.
Horace—Odes and Epodes.
Locke—Human Understanding.
Taylor—Rule and Exercises of Holy Living and Dying.
Voltaire—Zadig et Micromégas.

Lyall, Sir A. C.—Asiatic Studies, religious and social. First and Second Series, 2 vols., 1899, 8vo.

McIntosh, W. C. and A. T. Masterman.—Life Histories of British Marine Food Fishes. *Illust.*, 1897, 8vo.
——— Resources of the Sea. *Illust.*, 1899. 8vo.

Mahabharata.—In English Verse by Romesh Dutt. *Illust.*, 1899, 8vo.

Mahaffy.—History of Egypt under the Ptolemies, 8vo.

Mahámahopadhyaya Sámanta Sri Chandrasêkhara Simha.—Siddhanta Darpana. Treatise on Astrónomy. In Sanskrit with Introduction by J. Chandra Ráy. *Calcutta*, 1897, 8vo.

Maine, Sir H. S.—Popular Government. Four Essays, 5th edition, 1897, 8vo.

Mainwaring, G. B.—Dictionary of the Lepcha language. Revised and completed by A. Grünwedel. *Berlin*, 1898, 8vo.

Marryat, Captain F.—Novels, 21 vols., 1896, 8vo.

Marshall, A.—Principles of Economics, 1898, 8vo.

Marshman, J. C.—Abridgement of the History of India, 1893, 8vo.

Mason, O. T.—Woman's Share in Primitive Culture. *Illust.*, 1895, 8vo.

Massee, G.—Text-book of Plant Diseases caused by Cryptogamic Parasites. *Illust*, 1899, 8vo.

Mathew, J.—Eaglehawk and Crow: Study of the Australian Aborigines. *Illust.*, 1899, 8vo.

Maudsley, H.—Body and Mind: their Connection and Mutual Influence, specially in reference to Mental disorders. [*Gulstonian Lectures.*] 1870, 8vo.

Maudsley, H.—Body and Will; an Essay concerning Will in its Metaphysical, Physiological, and Pathological Aspects, 1883, 8vo.

Maunder, E. W.—Indian Eclipse, 1898. *Illust.* [*British Astronomical Association.*] 1899, 8vo.

May, Sir T. E.—Constitutional History of England. 1760–1860, 10th edition, 3 vols., 1891, 8vo.

Maycock, W. P.—Electric Light Distribution. *Illust.*, vol. I, 1898, 8vo.

Mayer, A. B.—Distribution of the Negritos in the Philippine Islands and elsewhere. *Dresden*, 1899, 8vo.

Milne.—History of Egypt under the Roman Rule, 8vo.

Milne, J.—Seismology. *Illust.* [*International Scientific Series.*] 1898, 8vo.

Mitchell, J. M.—Hinduism, past and present, 2nd edition, 1897, 8vo.

Mivart, St. G.—Groundwork of Science: a Study of Epistemology. [*Progressive Science Series.*] 1898, 8vo.

More, Sir T.—Utopia. [*Pitt Press Series.*] *Cambridge*, 1897, 8vo.

Morley, H.—English Writers: an Attempt towards a History of English Literature, 11 vols., 1888–97, 8vo.

Müller, F. Max.—Auld Lang Syne. My Indian Friends, 1899, 8vo.

——— Râmakrishna: His Life and Sayings, 1899, 8vo.

——— Six Systems of Indian Philosophy, 1899, 8vo.

Munro, J.—Story of the British Race, 1899, 8vo

Murray, G.—Introduction to the Study of Seaweeds. *Illust.*, 1895, 8vo.

Murray, J. A. H.—New English Dictionary. Series II, Part 4 and Series III, Part 2, 4to.

Newman, G.—Bacteria, especially as related to the Economy of Nature, to Industrial Processes, and to the Public Health. *Illust.* [*Progressive Science Series.*]

Oates, E. W.—Manual of Game Birds of India. Part II, Water Birds. *Bombay*, 1899, 8vo.

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Palgrave, R. H. I.—Dictionary of Political Economy, 3 vols., 1894–1899, 8vo.

Palmer, E. H. and G Le Strange.—Concise Dictionary, English-Persian; with simplified Grammar of the Persian Language, 1883, 8vo.

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Architectural Photography. G. A. T. Middleton, 1898.
Mounts and Frames, and how to make them. F. C. Lambert, 1898.
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Wet Collodion Photography. C. W. Gamble, 1895.

Poe, E. A.—Works, 4 vols., 1899, 8vo.

Pollock, Sir F.—Introduction to the History of the Science of Politics, 1897, 8vo.

Pool, J. J.—Land of Idols: or Talks with Young People about India. *Illust.*, 1894, 8vo.

Poole, S. L.—Babar. [*Rulers of India*] *Oxford*, 1899, 8vo.

Portman, M. V.—Notes on the Languages of the South Andaman Group of Tribes. *Calcutta*, 1898, 4to.

Powell, J. W.—Truth and Error; or the Science of Intellection. *Chicago*, 1898, 8vo.

Proctor, R. A., etc.—Leisure Readings, 1896, 8vo.

—— —— Myths and Marvels of Astronomy, 1896, 8vo.

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APPENDIX E.

CLASSIFIED LIST of Expenditure of the Government Museum during the year 1899–1900.

	Actuals, 1899–1900.	Revised estimate, 1899–1900.
	Rs.	Rs.
Salaries—		
Superintendent	9,600	9,600
Exchange compensation allowance	587	597
Local allowance	2,400	2,400
Total ..	12,587	12,597
Permanent establishment—Government Museum—		
First Assistant, Second Assistant, first, second and third taxidermists, herbarium-keeper, artist, writer, assistant writer, fifteen hamals *, six gallery attendants, Superintendent's peon, door-keeper, chickledar and two peons—35 persons	6,820	7,099
Temporary establishment—Government Museum—		
Collecting taxidermist, three gardeners, three sweepers, five watchmen, water-pandal Brahmin, punkah-puller, and chockra—15 persons	1,041	1,059
Permanent Establishment, Connemara Public Library—		
Sub-Librarian, three attendants and two peons—six persons	2,347	2,354
Temporary Establishment—Connemara Public Library—		
Servant (sweeper)—1 person	48	48
Total, Establishment ..	10,256	10,560
Allowance—		
Travelling allowance	1,248	1,200
Supplies and Services—		
Cost of specimens purchased on tour	861	900
Objects of interest and coins purchased at head-quarters.	519	486
Fittings, furniture, &c., for the collections	2,417	2,317
Cost of books and publications	907	900
Library	1,777	2,000
Lithographic plates	479	500
Ammunitions	15	15
Charges for feeding live animals	211	200
Expenses—		
Reading coins	37	10
Measurement	37	50
Total, Supplies and Services ..	7,200	7,378
Contingencies—		
Purchase of furniture	82	437
Freight charges	25	..
Repairs to furniture	110	100
Cleaning charges	70	95
Postage „	212	180
Telegraph „	16	20
Rents, rates and taxes	3,843	3,843
Liveries and clothing of servants	54	100
Miscellaneous (cost of Europe stores)	344	..
Office expenses, including such articles as gum-pots, rat-traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vinegar, water-pots, ropes, match-boxes	620	645
Tour charges	296	345
Petty repairs to buildings	..	1,000
Total, Contingencies ..	5,672	6,765
Grand Total ..	37,023	38,500

* Two hamals have been newly entertained from 1st January 1900.

ORDER—No. 313, Educational, dated 26th July 1900.

Recorded. The report is full of interest.

2. The thanks of Government are due to the ladies and gentlemen who contributed books and other articles to the Connemara Public Library and the Museum during the year.

3. The number of copies of the report asked for by Mr. Thurston will be furnished to him by the Superintendent, Government Press.

(True Extract.)

M. HAMMICK,
Ag. Secretary to Government.

REPORT ON THE ADMINISTRATION

OF THE

GOVERNMENT MUSEUM AND CONNEMARA PUBLIC LIBRARY

FOR THE YEAR

1900-1901.

BOMBAY BRANCH

OF THE

Royal Asiatic Society.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper:—

From EDGAR THURSTON, Esq., Superintendent, Government Museum, Madras, to the Secretary to Government, Educational Department, dated 7th July 1901, No. 26-A.

I have the honour to forward, for submission to His Excellency the Governor in Council, my report on the working of the Government Museum during 1900–1901, and to request that I may be supplied with 160 copies for distribution to other museums, etc.

ENCLOSURE.

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM FOR THE YEAR 1900–1901.

1. VISITORS.—The total number of visitors to the museum old building was 417,890, and to the new building 429,849 against 415,558 and 415,749 in the previous year.

	Old building.	New building.
Smallest number of visitors on any day not a holiday ..	144	479
Largest „ „ „ ..	14,038	15,080
Smallest number of visitors on Sunday	421	433
Largest „ „	1,531	1,507

The largest number of visitors on a single day was 91,926 to the old and 89,465 to the new building at the feast of Pongal (January 15th). The huge crowd, largely made up of the lower classes, was thoroughly well behaved, and no theft, accident or damage to the collections occurred. The number of visitors on Sundays was 45,872 to the old and 45,794 to the new building, giving averages per Sunday of 866 and 864 against 841 and 818 in the previous year. The number of gosha visitors, on the days set apart for them, was 3,642 against 4,783 in 1899–1900.

The museum was visited in the course of the year by His Excellency the Viceroy, and by Her Highness the Maharanee Regent of Mysore and the ladies of the Zenana.

2. THEATRE.—The theatre was, owing to the death of the Queen-Empress, only used on six occasions, as follows:—

Entertainment on behalf of the Society for the Prevention of Cruelty to Animals;

Concert by the Madras Cyclist Club in aid of the Friend-in-Need Society;

Concert in aid of the Doveton Protestant Institutions;

Two concerts by the Madras Musical Association;

Concert by the Madras School of Music.

3. GROUNDS.—The grounds remained throughout the year under the management of the Agri-Horticultural Society.

4. ESTABLISHMENT.—The Taxidermist's department was remodelled as follows in accordance with G.O. No. 1042, Financial, dated 18th September 1900 :—

	Minimum.	Maximum.
	RS.	RS.
Senior Taxidermist	30	35
Second „	20	25
Third „	10	15

In the same Government Order the pay of the herbarium keeper was raised from Rs. 60 to Rs. 100—120 per mensem, and he was permitted to live in a vacant bungalow in the museum grounds.

5. PUBLICATIONS.—The following publications were issued during the year :—

Bulletin Vol. III, No. 1.—Notes on some of the people of Malabar, F. Fawcett; Mala Védars of Travancore, Mrs. Evans; miscellanea, E. Thurston.

Bulletin Vol. III, No. 2.—Sea fisheries of Malabar and South Canara, E. Thurston.

Bulletin Vol. IV, No. 1.—Todas of the Nilgiris; Eurasian school-boys; Meriah sacrifice post; walking through fire; Malaiālis of the Shevaroys; Scissors people; sorcery in Coimbatore; Nayádis of Malabar.

Bulletin Vol. III, No. 3, containing an account of the Nayars of Malabar by Mr. Fawcett, was in an advanced stage of preparation at the close of the year. So also was Mr. R. Bruce Foote's catalogue of the pre-historic collection of the museum. Illustrated, as it will be, by thirty-five plates, reproduced from a series of excellent photographs taken by the Madras Survey department, it will prove a very important addition to the existing literature on the palæolithic, neolithic and iron ages in Southern India.

The half-tone reproductions of photographs, with which the Bulletins were illustrated, were executed to my entire satisfaction by the M. E. Publishing House, Mount Road, Madras.

6. *Anthropology.*—I was accompanied throughout my tour on the west coast by a professional photographer, who took a series of photographs of Nayars, Tiyans, Cherumans, Mukkuvans, Mappillas, Paniyans and Nayādis. The photographer was also sent to Sriharikota in the Nellore district, to take photographs of the Yanādis in connection with a forthcoming bulletin. To the Kumara Rája of Bobbili I was indebted for a series of photographs of the Gadabas of Vizagapatam, whose females adorn themselves with a dress-improver worn outside the cotton loin-cloth. To the ethnological album were added photographs of the nomad Lambādis and Koravas, and the Khonds of Ganjám.

In Malabar a series of measurements of Mappillas, Mukkuvans, and Paniyans were recorded. With the physique of the two former classes, which are engaged in the fishing industry, and attribute their good condition to a liberal fish dietary, I was much impressed.

The notes made during a prolonged halt at Paikāra concerning the Todas, which have been published in the Bulletin series as a supplement to my original account of this tribe (Bulletin, Volume I, No. 4, 1896), included a series of vital statistics, pastoral songs, funeral ceremonies, &c. According to the returns of the recent census, in connection with which special precautions were taken to ensure accuracy, the Todas have increased in number by thirteen during the last decade, numbering 422 males and 330 females against 427 and 312 in 1891.

The ethnological section was enriched by the addition of an interesting historic relic in the shape of a human (Meriah) sacrifice post from Baligudu in the Ganjám district. This post, which was fast being reduced to a mere shell by "white-ants" is, I believe, the only one now in existence. The post illustrates the method of sacrifice described by Major-General Campbell, who was deputed by Government to help in putting an end for ever to the inhuman and barbarous practice, and writes (1864) that "one of the most common ways of offering the sacrifice in Chinna Kimedi

is to the effigy of an elephant (hatti mundo) rudely carved in wood, fixed on the top of a stout post, on which it is made to revolve. After the performance of the usual ceremonies, the intended victim is fastened to the proboscis of the elephant, and, amidst the shouts and yells of the excited multitude of Khonds, is rapidly whirled round, when, at a given signal by the officiating zani or priest, the crowd rush in, seize the Meriah, and with their knives cut the flesh off the shrieking victim as long as life remains. He is then cut down, the skeleton burnt, and the horrid orgies are over."

A series was exhibited, illustrating, by means of photographs and specimens, the musical instruments, ornaments and implements of the Kotas, or artisan tribe of the Nilgiris, who furnish the music at Toda funerals in return for the carcases of the buffaloes which are sacrificed thereat.

A further series was exhibited, illustrating the method of making fire by friction, in vogue among the Todas, Paniyans, and Nayādis. The use of matches is strictly forbidden by the Todas within the precincts of the dairy temple, and fire is kindled with the aid of two dry sticks of *Litsœa Wightiana*. Of these one, terminating in a convex extremity, is about 2 feet 3 inches long; the other, with a hemispherical cavity scooped out close to one end, about $2\frac{1}{2}$ inches in length. Into the cavity the end of the longer stick fits, so as to allow of easy play. The smaller stick is placed on the ground, and held tight by firm pressure of the great toe applied to the end furthest from the cavity, into which a little finely powdered charcoal is inserted. The larger stick is then twirled vigorously between the palms of the hands by two men, turn and turn about, until the charcoal begins to glow. Fire, thus made, is said to be used at the tiriēri (sacred mand), the dairy-houses, and at the cremation of males. The Paniyans use, for the purpose of obtaining fire, a portion of a bamboo stem, which is split longitudinally into two equal parts. On one-half a sharp edge is cut with a knife. In the other a longitudinal slit is made through about two-thirds of its length, which is stuffed with a piece of cotton cloth. The latter is held firmly on the ground with its convex surface upwards, and the cutting edge drawn, with a sawing motion, rapidly to and fro across it by two men, until the cloth is ignited by the red-hot particles of wood in the groove cut by the sharp edge. The cloth is then blown with the lips into a blaze, and the tobacco or cooking fire can be ignited.

From Mr. T. H. Welchman I received a sample of clay, which is eaten by the coolies, chiefly females, on the Cochin hills. "They roast it", he writes, "and eat it in large quantities, about 1 or $1\frac{1}{2}$ pounds. They seem to be ashamed of the habit, and, if other people see them eating it, try to hide it. After about twelve months they swell up, especially the face and abdomen, and refuse all other food, drinking only water. Eventually they die. I am told that, to stop the practice, the natives administer castor-oil to the earth-eaters, but this does not prevent them from eating more, if they can get the chance. I have known several cases of death from this cause." The practice of earth-eating is widespread in many countries, and in Zanzibar there is a disease called safura induced thereby.

To Mr. A. Rea, Superintendent, Archæological Survey, I was indebted for a number of pre-historic human bones and fragments of pottery, some of which, including the articular ends of long bones, phalanges, vertebræ, portions of skulls and lower jaws, have been exhibited. "The excavations at Adichanallur", Mr. Rea writes (G.O., No. 800, Public, dated 16th August 1900) "yielded the most valuable results. Besides a very large quantity of bones and vessels in pottery, I found, at one part of the ground, a number of domestic utensils in bronze and iron. The iron articles comprise large bracketed and small chain hanging lamps, swords, spears, knives, adzes, celts, hammers, rings, bangles, etc. Those in bronze are small cups, moulded and ornamented jars, flat bowls, platters, perforated cup sieves, large fragmentary chatties, rings, bangles, and some curious lamps with surrounding curved arms supporting reflecting discs, and buffaloes with large curved flat horns, which doubtless also, when polished, would act as reflectors. In one vessel was a strip of gold leaf with dotted ornament. A great field for discovery exists here."

A small collection of pre-historic stone implements, found at Walajabad in the Chingleput district, was presented by Mr. Somu Sampson, and added to the existing collection.

Various questions relating to the ethnographic survey were discussed with the Mr. H. Risley, C.I.E., Census Commissioner, during his visit to Madras.

7. NUMISMATICS—A large find of silver punch marked purānas or eldlings from Travancore was reported on. A find of 257 lead coins of the Andhra dynasty with horse device and symbols, of a type new to the museum collection, was discovered by a ryot when ploughing his land in the village of Bathalapalli in the Anantapur district. From the Kistna district were received ten coins of the Pallava kings, of the type figured in Elliot's 'Coins of Southern India,' which were found by a sand digger in a masonry pit in the Pēṭēru village of the Tenali taluk. Specimens of the coinage of the Maldive islands were presented by Mr. C. Foster Cooper. To the North-Western Provinces Government, the Bombay branch of the Royal Asiatic Society, and the Commissioner of Behar the museum was indebted for sundry coins of Northern India.

The museum series of the Chola, Pandyan and Vijayanagar dynasties, numbering in all 440 coins, arranged and catalogued in manuscript by Mr. T. Desika Chari, were returned and incorporated in the collection.

The casts and manuscript of volume 1 of the Catalogue of South Indian Coins, dealing with the coinage of the various European Companies, Mysore, Travancore, Nawábs of the Carnatic, Pudukota, &c., was completed during the year.

8. ART AND ARCHÆOLOGY.—The following pictures by native artists, purchased by the Fine Arts Society or sent in for competition in the sketching section thereof, were exhibited as a loan collection :—

Early to the fair, C. Raja Raja Varma.
Raja canal, Coimbatore, M. Dastagir Khan.
Designs for a poster of an Art Society's Exhibition, M. Valayudasari.
Studies from life, M. Valayudasari.
A quiet corner, M. Pithawalla.
A quiet corner, M. Valayudasari.
The Lohagád, one of Sivaji's fastnesses, C. Raja Raja Varma.
A gong-beater, C. Kristna Rajoo.
Vishwamitra asking Dasharatha for Ram and Laxman to punish the demons, M. V. Dhurandhar.
Still life, V. N. Mestry.
Fruits, Chunilal M. Ghodi.
In honour of baby's birthday, C. Raja Raja Varma.
A water-carrier, C. Raja Raja Varma.

A series of paintings of armour, jewels of the zamindars of Kálahasti and Karvetnagar, with sketches of the genealogical tree of their families, were received from the Collector of North Arcot.

A set of twenty-six negatives of the Gandhara sculptures from the Punjab preserved in the museum, was prepared, at the request of Dr. T. Burgess, C.I.E., by the Survey department. Photo prints of a sculptured slab from the Amaravati stupa, representing a battle scene, were sent to Mr. R. Sewell.

Two iron shots, found about a foot below the surface of the ground at Trichinopoly, near St. John's Church, were presented by the Rev. F. Penny. They are probably relics of the fighting which took place round the Fakir's rock and Fakir's tope between the French and English, 1740—50.

Three copper grants, found in the village of Vasanta in the Srungavarapukota taluk of the Vizagapatam district, were received and sent to the Government Epigraphist for translation.

9. INDUSTRIAL AND ECONOMIC.—In connection with Rouffaer and Juynboll's beautifully illustrated 'Indische Batik-kunst' reports on, and series of specimens illustrating the art of wax and coloured drawing in the manufacture of colour-printed cotton fabrics were received from the Madura, Tanjore, Tinnevelly, Chingleput, North Arcot and Kistna districts. The collections thus acquired include the various forms of wax-brushes or pens, wood and metal blocks used for applying the dye, and samples illustrating the various stages of preparation from the plain cotton material to the

completed fabric. The information received from district officers in connection with the enquiry has been printed in the form of a memorandum for submission to Mr. Rouffaer.

In the compilation of a monograph on the ivory carving industry of Southern India under instructions from the Government of India, I received great assistance from Mr. H. S. Ferguson, who was good enough to prepare a detailed note on the industry in Travancore. To the Travancore and Mysore durbars thanks are due for a series of negatives of ivory carving and inlaid ivory-ware, and to the Rajah of Kollengod for the loan of his private collection of ivory carvings of animals and the Hindu pantheon. At the recent Fine Art Society's exhibition, I was fortunate enough to secure an example of an exquisite little carved figure of Vishnu at the deluge by a former Travancore carver, which was reproduced in "Photographs of Indian art-ware:" Calcutta Exhibition, 1883-84. None of the more modern carvings equal this gem in artistic delicacy of treatment, and several loan exhibits at the Madras Exhibition, 1901, bore evidence to the fact that ivory carving in Southern India was formerly at a higher level of excellence than it is at the present day.

An enquiry was received from the Medical Storekeeper to Government concerning the possibility of obtaining large quantities of sea-weed suitable for the preparation of iodine and iodide of potassium. Specimens found in the Kwangtung harbour, Andamans, (*a*) at two or three fathoms, (*b*) along reefs exposed at low tide, were identified by Mr. G. Murray, F.R.S., of the British Museum as being *Enhalus Kœnigii*, a marine flowering plant of the order Hydrocharideæ, and *Turbinaria decurrens*, a sea-weed in close relationship to *Sargassum*. The herbarium-keeper of the museum was deputed to Tuticorin, where, though he found no sea-weed in sufficient abundance for commercial purposes, he got together a collection, of which a duplicate set has been sent to the British Museum, Natural History, for identification.

From the Collector of Tinnevelly district were received the pearls obtained from the washing of the 'oysters', on which it was decided to hold a fishery in March 1900. "Though the revenue derived by Government during the fishery was more than sufficient to cover the expenses of working, the net profit fell much below the estimated income, and the fishery cannot be said to have been on the whole a success. It proved disastrous to the poorer folk—the boatmen and the divers. It began badly by a combination among the merchants to keep down prices, and, when it became an undeniable fact that the oysters were immature and had very few pearls, a panic set in." (Proceedings, Board of Revenue, No. 880 Rev., dated 28th August 1900.)

The museum was consulted by the Board of Revenue in connection with the larva of a boring insect, which had, in the past year or two, killed a large number of date-palm trees in the Madras Presidency. It was reported to be ordinarily found working its way from the point of incision for tapping to the heart of the tree, and to be causing loss to the owners and the tapping industry, and prospective injury to the Government revenue from toddy. The insect proved to be the palm weevil *Rhynchophorus ferrugineus*, concerning which it is written (Indian Museum notes, Vol. II, page 9) that "the only remedies that have been suggested are the obvious ones of destroying the beetles wherever they are found, and of burning trees that are badly infested, to check the increase of the pest. Trees, however, that are not very badly attacked should be spared, as they are said to recover in many cases." Illustrations of the insect, in the three phases of its life-history, were widely distributed, to enable departmental officers and others to detect and destroy it.

10. Botanical Gallery.—This gallery was thrown open to the public during the year. The morphological series, illustrating the more striking features of the morphology of plants, commencing with the Phanerogams and ending with the Algæ and Fungi, was completed. As a supplement to this series, a collection of fruits and seeds was arranged in two groups:—

I. Index series—
   (*a*) Dried fruits and seeds, illustrating their morphology;
   (*b*) Spirit specimens of fruits, and sections thereof.

II. Fruits and seeds arranged systematically according to their Natural Orders.

A large number of the specimens in this series were in the excellent forest collection, which was brought together by Mr. J. S. Gamble, when Conservator of Forests.

A series of illustrative plates and diagrams was arranged, to show the main diagnostic characters of the various Natural Orders, and the histology of the main groups of plants.

As an adjunct to the morphological series, two further series of herbarium specimens are being prepared, to illustrate (*a*) the more important genera of the various families; (*b*) the salient features of the flora of Southern India. Of these, the former will be exhibited in glazed frames, and the latter set apart for the purpose of study by students. For these series a number of specimens were collected during the tours on the Nilgiris, in Malabar and the Nellore district.

I was happy in securing the services of Mrs. Bishop, who very kindly volunteered to paint a series of botanical studies in the plains of Travancore and on the higher ranges of the Palni hills. The value of these paintings, of which a considerable number have already been received and exhibited, is materially enhanced by the fact that the studies are supplemented by paintings of dissections of fruit, flowers, etc.

11. Mineral Gallery.—Among the additions may be noted—

Asbestos from the Mysore province.

Magnesite from the rich deposit in the so-called 'chalk hills' of the Salem district, where it is now being worked commercially.

Garnetiferous leptynite from Coonoor, Nilgiris, where it is worked for metalling of the ghât road.

Iron pyrites from Gadikota in the Cuddapah district.

Orange mica from Travancore.

Biotite (black mica) from the Nellore mines.

A series of photographs illustrating the system of quarrying mica at the Nellore mines, and the preparation of the mineral for the market and export. The exports of mica from the port of Madras in 1900 amounted in round numbers to 950 tons, valued at Rs. 6,76,600.

A series of specimens of blue and red corundum from the Salem district Samples of the blue mineral were reported, in the City of London, to be iolite, which is "rather uncommon, and, when in clear sound pieces of good colour, is of value as a curiosity. The samples sent are defective, and of very little value." Ceylon affords a transparent variety of iolite, in small rolled masses, of an intense blue colour, the *sapphire d'eau* of jewellers (Dana).

Garnets and mica from the Mysore province.

A collection of articles made of black clay in the South Canara district, representing in miniature sundry domestic utensils.

Charts illustrating the course of a typical cyclonic storm in the Bay of Bengal during the north-east and south-west monsoons.

12. Sea-fisheries Investigation.—In connection with this investigation referred to in my last report, which is controlled by me on behalf of the Board of Revenue, I visited the fish-curing yards at Tanúr, Calicut, Badagara and Tellicherry on the Malabar coast, in order to explain personally to the officer in charge the exact nature of the enquiry, which has to be systematically carried out. The main points on which information is to be obtained were summed up in a memorandum, which is reproduced in Appendix D. The enquiry has perforce, in the absence of a trained expert in applied marine zoology, to be of a less scientific and ambitious nature than that recently planned by Professor V. A. Herdman, F.R.S., for the survey or 'census' of fishing grounds, and omits systematic dragging, physical observations, examination of the plankton, etc. Nevertheless, I hope that, if the questions in the memorandum are intelligently examined into and answered by the inspecting officer, we shall add something to our existing knowledge of the fisheries and fishing folk, which will serve as a stepping-stone to something worthy of the name of practical research hereafter.

At the time of my visit to Malabar fishing operations were rather slack, and there was a general complaint of the absence of sardines. But enormous catches of prawns (*Penœus sculptilis*, Heller) were being secured close in shore, and after salting and sun-drying, exported in large quantities to Colombo, and other places. The dearth of fish was attributed by the fishermen to their fear of coming near the coast, where the prawns would attack them with their serrated spines. To Colonel Hackett-Wilkins, I.M.S., I was indebted for specimens of the fish *Saccobranchus fossilis*, which were sent for identification. "This fish," he writes, "is supposed to be poisonous, as, when a person is bitten by one of them, gangrene gradually takes place; and, if the part is not removed above the nearest joint, it slowly and steadily goes on spreading upwards. During the last three years I have performed about eight amputations for the result of these bites, and in one neglected case I had to remove the arm above the elbow-joint. The fish is supposed to be a fresh-water one, and, when caught by the fishermen, is avoided; and, rather than touch it, they chop it into bits." In his 'Fishes of India,' Day says that wounds from the pectoral spine of this fish are dreaded, as they even occasion tetanus. As soon as captured, the offensive spine is broken off by blows with a stake. It is called in tamil théloo (scorpion).

13. Natural History.—To the series illustrating tegumentary structures was added a hair ball, 12·3 cm. in diameter, and weighing 22 ounces, made up of agglutinated hairs rolled into a ball by the churning action of the stomach, which was extracted from the stomach of a buffalo at Calicut. The skeleton of a kangaroo, which died in the People's Park, was prepared, to show the epipubic bones which support the marsupial pouch. The grooved and curved os penis of a bear (*Melursus ursinus*), measuring 15·5 cm. in length, and the small serrated os penis of a tiger were acquired, the former as a donation, the latter from an animal which died in the People's Park. Two specimens of the valued horny excrescence from the head of a jackal were presented. "The natives call it narri-comboo, and aver that this jackal's horn only grows on the head of the leader of the pack. The Singhalese and Tamils alike regard it as a talisman, and believe that its fortunate possessor can command the realization of every wish, and that, if stolen or lost by him, it will invariably return of its own accord. Those who have jewels to conceal rest in perfect security if, along with them, they can deposit a narri-comboo" (Tennent, Ceylon).

An Indian pangolin or ant-eater (*Manis pentadactyla*) was mounted to show how, when alive, this animal rolls itself into a ball for the purpose of defence. To Mr. A. Brown of Calicut I was indebted for the skull of a sambar deer (*Cervus unicolor*) with an aberrant frontal tine.

Among the additions to the Bird gallery collected locally, may be noted the spotted crake (*Porzana maruetta*); grey-headed lapwing (*Microsarcops cinereus*); sanderling (*Calidris arenaria*); and the curlew stint (*Tringa subarquata*). A pintail snipe (*Gallinago stenura*), with abnormally light plumage, was presented by Mr. Rosling. An edible nest of the Indian nest swiftlet (*Collocalia fuciphaga*) was collected by Mr. J. Bourne on Sacrifice Rock off the Malabar Coast.

Small collections of the land mollusca of Ceylon and Madras City were presented by Mr. Coliett and Mr. V. V. Ramanan.

14. Live Animals.—Among the additions which were alive at the end of the year were the weaver bird (*Ploceus baya*), the smaller white scavenger vulture (*Neophron ginginianus*), the fish *Saccobranchus fossilis*, and the tortoise *Testudo elegans*, half-grown and young.

The tortoises fed greedily on the red flowers of *Hibiscus rosa-sinensis*. The female of a pair of Indian antelope rats (*Gerbillus indicus*), after four years in captivity, gave birth to three young ones in March. The green whip-snake (*Dryophis mycterizans*) gave birth in October to nine young ones. A rat-snake (*Zamenis mucosus*) died covered with an ecto-parasitic arachnid. To the Python cage were attached specimens showing the rudimentary bones of the hind limbs, which terminate in an anal claw on each side of the cloaca.

15. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 13,284 against 14,105 in the previous year—

Smallest number of readers	on any day	.. ..	8
Largest „	on „	.. ..	140
Smallest „	on Sunday	.. ..	27
Largest „	on „	.. ..	101

The following tabular statement shows the number of applicants for books, and of the volumes given out during the last two years:—

Months.	1899-1900.		1900-1901.	
	Number of applicants for books.	Number of volumes given out.	Number of applicants for books.	Number of volumes given out.
April	1,330	1,886	782	1,084
May	916	1,420	767	1,103
June	1,126	1,583	640	922
July	992	1,444	694	1,010
August	910	1,257	711	979
September	981	1,347	814	1,455
October	833	1,185	752	1,127
November	795	1,172	599	937
December	1,112	1,892	1,059	1,603
January	1,079	1,484	1,027	1,534
February	813	1,312	931	1,187
March	901	1,254	1,288	1,606
Total ..	11,788	17,236	10,064	14,547

The total number of standard works added to the library during the year was 358, of which 310 were acquired by purchase and 48 presented. Some destruction to books was caused by the intrusion of white-ants, which gained access to the book cases both through the floor and the ceiling. The damage done by them was most severe in one of the alcoves in the half of the building which is temporarily occupied by the Madras Literary Society.

As a rough indication of the class of literature resorted to by readers, I append a list of books issued during the last two years under each of the subject catalogue heads, which, *inter alia*, shows the popularity of philosophy, dictionaries, and the Fort St. George Gazette:—

	1899-1900.	1900-1901.
Anatomy; biology; natural history; zoology	579	549
Anthropology; folk-lore	621	545
Archæology; architecture	174	230
Arts; industries	245	270
Atlases and maps	120	101
Botany; arboriculture; horticulture	279	199
Belles lettres	547	580
Chemistry; chemical industries; agriculture	191	219
Classics	256	243
Dictionaries; encyclopædias	1,863	2 036
Economic products and economic entomology	57	111
Education; ethics; logic; metaphysics; philosophy; political economy	1,180	1,294
Exhibitions	84	95
Forestry; timbers	35	49
Geography; physical geography; physiography	100	63
Geology; palæontology	63	67
History	769	836
Jurisprudence	150	172
Microscopy	25	8
Medicine; medical jurisprudence; pathology; pharmaceutics; surgery; veterinary	283	274
Mineralogy; metallurgy; petrology	86	64
Natural philosophy	664	513
Numismatics; heraldry; medals	248	61

	1899-1900.	1900-1901.
Philology ; epigraphy	194	206
Photographs	45	39
Physiology	117	158
Public health	339	263
Religion	592	448
Sports and games	342	325
Travels and foreign countries; voyages	371	384
Fort St. George Gazette (other than current issues)	690	665
Vernacular languages	..	98

The following additions to the subject index catalogues were published during the year :—

Belles Lettres. Chemistry ; photography.

In appendix B is given a statement showing the number of readers in every month during each hour of the working day.

16. VALUABLE STOCK.—The necessary inventory was maintained and duly checked. The collections were all in good order at the end of the year.

APPENDIX A.

Donations, 1900–1901.

Anantapur, Collector—
Lead coins of the Andhra dynasty (horse type) found in the village of Bathalapalli, Dharmavaram taluk.

Appa Row Bahadur, Mr. M. R.—
Sandalwood fan.

Appu Menon, Mr. K.—
Kanakkan marriage umbrella.

Baker, Mr. T. H.—
Kukri, the personal property of the late Sir Ranoodeep Singh, Prime Minister of Nepal.

Bartly, Mr. W. H.—
Clavicles (rudimentary collar-bones) of tiger and panther.
Os penis of bear.

Bobbili, Kumara Raja—
Photographs of Gadabas of Vizagapatam.

Bourne, Mr. J.—
Edible Bird's nest (Collocalia fuciphaga), sacrifice rock, Malabar.

Bradley, Mrs.—
Wild silk moth (Actias selene).

Brown, Mr. A.—
Sambar stag with aberrant tine.

Cooper, Mr. C F.—
Maldivian copper coins.

Cuddapah, Collector—
Iron pyrites.

Deane, Mr. B. O. M.—
Garnets and mica, Mysore Province.

Doraisawmy Sastri, Mr. V. R.—
Horny growth (narrikomboo) from head of jackal.

Ettiyapuram, Raja—
Chicken (monstrosity).

Fletcher, Mr. F. E.—
Mollusc (Ostrea sp.).
Snake (Dipsas trigonata).

Ganjám, District Magistrate—
Meriah sacrifice post from Balliguda.

Gordon, Woodroffe & Co., Messrs.—
Red and blue corundum from the Salem district.

Govind Doss, Mr. L.—
Whip snake (Dryophis mycterizans) alive.

Hackett Wilkins, Colonel J.—
Hair ball from stomach of buffalo.

Hatchell, Mr. D. G.—
Loris and chamæleon, alive.

Kelly, Mr.—
Indian little Grebe (Podiceps albipennis) and egg.

Kistna, Collector—
Ten Pallava coins.

Kumarasawmi Aiyar, Mr. T. E.—
Black mica (biotite).

MacIver, Mr. S. G. I.—
Graphite, Coonoor, Nilgiris.

Madras Arsenal—
A stone slab commemorating the success of the British arms at Manilla in 1762.

Muhammad Badsha Sahib & Co., Messrs.—
Photographs of the mica mines and mining in the Nellore district.

APPENDIX A—*cont.*

Municipal Commission, Madras—
Parakeet.
Parrot.
Malabar Langur (Semnopithecus hypoleucus).
Spectacle monkey.
Tiger cub.
Indian bear (Melursus ursinus).
Kangaroo.

Murugasen, Mr. P. R.—
Abnormal cocoanut.
Fish (Stegostoma tigrinum).

North Arcot, Collector—
Pictures of armour, jewels of the Zamindars of Kálahasti and Karvetnagar, with sketches of the genealogical tree of their families.

North-Western Provinces and Oudh Government—
Fifteen lead coins, thirteen silver coins, and a copper coin.

Penny, Rev. F.—
Iron shot found near St. John's Church, Trichinopoly.

Rajagopálachariar, Mr. K.—
Pearl oysters (Avicula fucata).

Ramachendra Mudaliar, Mr. D.—
Tendril of a creeper.

Ramanan, Mr. V. V.—
Land and fresh water shells of Madras City.

Rea, Mr. A.—
Human bones and skulls from prehistoric tombs in the Tinnevelly district.

Reger, Mr. W.—
Silk moth (Anthera mylitta).

Rosling, Mr A. W.—
Snipe with abnormal plumage.

Royal Asiatic Society (Bombay Branch)—
Silver coins of Shah Alam and Muhammad Shah (Ahmadabad mint) found in the Kaira district.
Gold coin of the Khalifs found in the Ratnagherry district.
Gold coin: Padmatanka, Southern Indian, found in the Bijapur district.
Copper coins of Muzaffar II, Ahmad Shah II, Muzaffar III, found in the Ahmadabad district.

Royal Botanical Gardens, Calcutta—
One hundred and fifty sheets of botanical specimens (flowering plants).

Royappen, Mr. M.—
Mauser cartridges from the battle-field, South Africa.

Runganayakalu Chetty, Mr. S.—
Nest of Indian tailor bird (Orthotomus sutorius).

Sampson, Mr. S.—
Stone prehistoric implements from Walajabad.

Sim, Mr. H. A.—
Indian Pangolin (Manis pentadactyla).

Singara Babu, Mr. B.—
Abnormal cocoanut.

Vizagapatam, Collector—
Three copper plates found in the village of Vasanta in the Srungavarapukóta taluk.

Welchman, Mr. T. H.—
Land shells of the Anamalai hills.

Wun district (Berar), Deputy Commissioner—
Coins of Alá-ud-din Muhammad Shah, Ghiyas-ud-din Tughlaq Shah, and Muhammad bin Tughlaq Shah.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

APPENDIX B.

STATEMENT showing the total number of readers in Library in every month during each hour of the day, 1900–1901.

—	7—8	8—9	9—10	10—11	11—12	12—1	1—2	2—3	3—4	4—5	5—6	Total.
April	102	92	130	77	92	63	98	94	102	118	38	..
May	137	79	105	82	66	57	44	92	129	102	33	..
June	136	89	102	83	44	68	48	101	117	86	20	..
July	82	76	103	77	81	67	60	99	132	124	10	..
August	96	82	90	59	79	57	86	135	104	131	34	..
September	102	98	86	73	64	75	94	90	104	95	23	..
October	109	82	75	69	61	60	76	104	114	97	36	..
November	56	28	81	73	81	63	65	115	112	95	16	..
December	67	112	137	156	137	184	178	244	279	249	52	..
January	84	107	168	153	116	150	104	175	210	164	50	..
February	66	121	140	113	122	102	108	130	215	152	34	..
March	155	135	145	94	124	103	141	109	161	218	78	..
Total ..	1,192	1,101	1,342	1,109	1,067	1,049	1,102	1,488	1,779	1,631	424	13,284

APPENDIX C.

CLASSIFIED LIST of EXPENDITURE of the GOVERNMENT MUSEUM during the year 1900–1901.

	Actuals, 1900–1901.	Revised estimate, 1900–1901.
	RS.	RS.
Salaries—		
Superintendent	9,600	9,600
Exchange compensation allowance	592	590
Local allowance	2,400	2,400
Total ..	12,592	12,590
Permanent establishment—Government Museum—		
First Assistant, second Assistant, senior, second and third taxidermists, herbarium-keeper, artist, writer, assistant writer, fifteen hamals, six gallery attendants, Superintendent's peon, door-keeper, chickledar and two peons—35 persons	6,769	6,899
Temporary establishment—Government Museum—		
Collecting taxidermist, three gardeners, three sweepers, five watchmen, water-pandal Brahmin, punkah-puller, and chockra—15 persons	980	987
Permanent establishment—Connemara Public Library—		
Sub-Librarian, three attendants and two peons—six persons	2,464	2,481
Temporary establishment—Connemara Public Library—		
Servant (sweeper)—1 person	47	47
Total, Establishment ..	10,260	10,414
Allowance—		
Travelling allowance	982	1,200

APPENDIX C—*cont.*

Classified List of Expenditure of the Government Museum during the year 1900-1901—*cont.*

	Actuals, 1900-1901.	Revised estimate, 1900-1901.
	RS.	RS.
Supplies and Services—		
Cost of specimens purchased on tour	913	900
Objects of interest and coins purchased at head-quarters.	691	700
Fittings, furniture, &c., for the collections	1,427	1,400
Cost of books and publications	1,059	900
Library	2,015	2,000
Lithographic plates	1,959	1,500
Ammunitions	15	15
Charges for feeding live animals	276	200
Expenses—		
Reading coins	1	10
Measurement	8	50
Total, Supplies and Services ..	8,364	7,675
Contingencies—		
Purchase of furniture	44	75
Landing, shipping and freight charges	4	20
Repairs to furniture	80	100
Cleaning charges	76	95
Postage „	301	240
Telegraph „	15	20
Rents, rates and taxes	3,843	3,843
Liveries and clothing of servants	85	100
Office expenses, including such articles as gum-pots, rat-traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vinegar, water-pots, ropes, match-boxes	650	645
Tour charges	209	283
Miscellaneous	300	..
Total, Contingencies ..	5,607	5,421
Grand Total ..	37,805	37,300

APPENDIX D.

Memorandum.

A.—Fish-curing yards.

Boats.—Number at each fishing centre. Different kinds of boats. Of what wood they are made (aini, mango, etc.). Nature of sail (bamboo, mat, cotton, etc.), and whether one or more sails to a boat. How many men to a boat. Distribution of crew when fishing (*i.e.*, steersman, rowers, and men to look after nets). Full equipment and value of nets (their vernacular names) for a boat or pair of boats. By whom the boats are built, paid for, and owned. Estimate of how many mackerel, sardines, etc., form a boat-load at times of shoals. How many years a boat lasts. (It varies according to the wood used.)

2. *Nets.*—Vernacular names. Description of the different kinds. Whether made of cotton or hemp fibre. Their length, breadth and mesh. For catching what kinds of fish each net is used. Cost of each kind of net. By whom nets are made and repaired. By whom nets are owned. Who pays for making and repairing them? Damage done to nets by sharks, skates. Weight of big catches, etc. Method of spreading the nets at the fishing-ground. Which of the nets are used for in-shore fishing, and which for "deep sea."

3. Greatest distance from land to which fishing boats go, and depth at which fishes are caught. Time which boats are absent from land. Effect of exposure to sun in causing depreciation of value of fish owing to the time taken to get from the place where fish are caught to the shore. Under this heading fishermen and curers will be able to give much information about prime, second class, and spoiled fish.

4. Relation of wind to fishing hours, *e.g.*, going out to sea with land-breeze and returning with sea-breeze. Effect of these breezes on hours at which boats leave and return to shore. Delay in returning from the fishing-ground owing to failure of sea-breeze. Local knowledge, or beliefs concerning effects of currents in relation to fisheries. Notes on unusual currents.

5. Local views concerning the causes which are favourable or unfavourable to the arrival of shoaling fishes (mackerel, sardines, etc.) and which attract shoals to or drive them away from the coast. Course of shoals along the coast. Fishermen's rules as to privileges of the first boat which detects presence of a shoal. Signs by which fishermen detect the presence of a shoal (*e.g.*, sea-birds gathered together, appearance of surface of the sea, etc.).

6. *Fish oil.*—Fishes used. Methods of manufacture. Condition of industry—fluctuating, increasing, or declining, and the reasons. Selling price of the oil (*a*) for local consumption, (*b*) for export. To what places exported. Uses to which the oil is put.

7. *Sharkfins and fish sounds.*—From what fishes sounds are obtained. Method of preparation of fins and sounds. To what places exported. Prices.

8. English translation of fishermen's songs.

9. *Yards.*—Number of sheds in yard. Number of ticket-holders. Their caste. How many fishermen (or their wives) are also ticket-holders. Whether a single individual has tickets for more than one shed. Conditions of rent or payment under which ticket-holders have access to the yard. By whom yard or sheds are owned. To whom rent is paid. Disputes between different castes in the yard. Notes on evasion or breach of rules, theft, black-mailing, and breaches of discipline, which come under notice, and punishment inflicted. Whether, at times of heavy catches, the principle of "first come, first served" applies in the delivery of salt, or whether any curers are, in return for money, specially favoured by the yard-officers.

10. *Fish-curing*—Full details of the various methods adopted for (*a*) sun-drying, (*b*) salting and subsequent drying, etc. Proportion of salt used for different kinds of fish. Time taken to cure large and small fish. By whom gutting, curing and drying operations are carried out, and wages earned for so doing. What is done to the guts after removal from the fish. Modes of packing for train or export by steamer. How and to what places exported. Details of up-country distribution of fish by runners, etc. Effect of rain in spoiling curing operations.

11. *Prices.*—Full details as to the relation of fishermen to fish-curers. Prices paid for fish by the latter to the former, and by the exporting traders. In fact, the whole important question of the relation of fishermen, curers and exporters, with notes on indebtedness, poverty, etc. Maintenance and occupation of fishermen during the slack season. Whether fishermen resort to other occupations, or emigrate, owing to chance of more lucrative employment away from their homes. Contracts for fish to planters' agents and merchants at times of abundant shoals of fishes used for manure. Preparation of fish for purposes of manure.

12. Views of leading members of the fishing community as to advantage likely to be derived from permission to take out salt in the boats. Any views which the fishing community may have as to means by which the industry could be increased.

13. Any stray facts or information gathered in the course of conversation with the fishing community. Though apparently trivial, they yet may be of interest. The whole object is to make our knowledge of the fisheries and the community who live by them as thorough as possible. By community I mean both fishermen and curers.

B.—Inspections of Fish Markets (*Bazaars*).

The names of the kinds of fish which are most abundant, and of the other fishes for sale in the market.

2. Prices at which they are sold—singly, collectively or by weight, *e.g.*, a person, buying fish, may purchase a portion (by weight) of a big seer, kora, or shark, or an entire young seer or shark, or several nalla mathi (sardines), or a number of mullan (Equula). At times when shoals are abundant, the prices will naturally be less than when there are no shoals. And one object of the enquiry will be to arrive at the various prices paid for fish at different times (of plenty and scarcity of fish) at each market. It may also be ascertained, in the course of the enquiry, whether the prices of fish run higher in the big than in the small towns, *e.g.*, whether prices are higher at Calicut than at Tanur, etc. Prices paid by butlers of Europeans for fish, and what kinds. At Cannanore, contract prices for fish for soldiers.

3. Which kinds of fish are most sought after and appreciated by the buyers, and why this is so. Some kinds may be considered more nutritious, others more invigorating, etc.

4. Means adopted in the market to prevent the fish from becoming badly tainted before the day's sales are over, *e.g.*, nets against flies, salt-baths, fans, etc.

5. Whether sale transactions are in ready money, or credit is allowed to the purchaser on a system of book-keeping. If the latter, whether they have bad debts.

6. Castes of those who sell fish in the market. Rate which they pay as rent for their stall or place in the market, and conditions (*e.g.*, of license) under which they occupy stalls or have access to the market. Who the landlords or owners of the stalls are.

7. Any information, which can be extracted, as to profits earned by fish-selling in the market, and the difficulty or ease of earning a livelihood, in busy, slack and off season (=S.-W. monsoon).

8. The relations of sellers of fish in the market to the fishing community, *i.e.*, whether they are wives of the fishermen, etc.

9. At each market note number of fish-stalls or fish-sellers, male and female.

10. What happens to the fish which remains unsold at the end of the day.

11. Notes on price of fish-roes, shark's fins, fish-maws (*i.e.*, sounds), livers, prawns, crabs and other products of the sea.

12. Rules, which have to be adhered to, for keeping the fish-stalls clean. Penalty for not doing so.

13. Dates of notes of market inspections to be noted in every case.

14. Grievances, real or imaginary, of the fish-sellers, so far as can be obtained by chatting with them in the markets in such a way as not to frighten them. Point out that the enquiry is being carried on in the interests of the fishing industry and not with a view to increased taxation and that we want to know as much about it as is possible.

15. Any information as to knowledge among fish-sellers of diseases of fish, *e.g.*, from parasites ("worms," etc.).

16. Any other facts of interest, which may come out in the course of enquiry.

ORDER—No. 433, Educational, dated 5th August 1901.

The administration report of the Government Museum and Connemara library for 1900-1901 testifies to the energy of Mr. Thurston and the interest which he takes in the development of the institutions, and is a record of much useful work on different lines of research. The several bulletins which were published during the year are interesting, and will be of service to ethnologists and others:

2. The Governor in Council is indebted to the ladies and gentlemen who have rendered help to Mr. Thurston in various ways or presented donations.

3. The Superintendent of the Government Press will arrange to supply to Mr. Thurston the number of copies of the report which he requires.

(True Extract.)

L. E. HOPKINS, Lt., R.E.,
for *Secretary to Government.*

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY.

MADRAS: PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS.

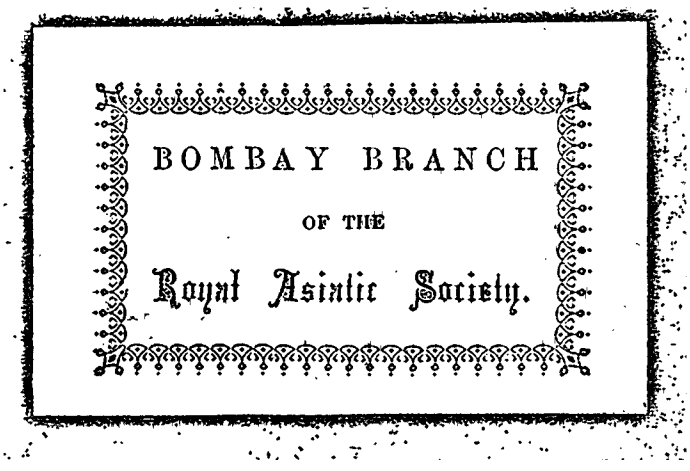
REPORT ON THE ADMINISTRATION

OF THE

GOVERNMENT MUSEUM AND CONNEMARA PUBLIC LIBRARY

FOR THE YEAR

1901 - 902.


BOMBAY BRANCH
OF THE
Royal Asiatic Society.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper:—

From EDGAR THURSTON, Esq., Superintendent, Government Museum, Madras, to the Secretary to Government, Educational Department, dated 7th July 1902, No. 26 B.

I have the honour to forward, for submission to His Excellency the Governor in Council, my report on the working of the Government Museum and Connemara Public Library during 1901–1902, and to request that I may be supplied with 160 copies for distribution to other museums, etc.

ENCLOSURE.

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM FOR THE YEAR 1901–1902.

1. VISITORS.—The total number of visitors to the museum old building was 410,436, and to the new building 398,822.

	Old building.	New building.
Smallest number of visitors on any day, not a holiday ..	3*	3
Largest do. do. ..	15,297	12,864
Smallest number of visitors on Sunday	423	479
Largest do. do.	1,953	1,948

* Cyclonic storm of December 9th, which brought 10·3 inches of rain to the city.

The largest number of visitors on a single day was 94,239 to the old, and 86,752 to the new building at the feast of Pongal (January 15th). The number of gosha female visitors, on the monthly Saturdays set apart for them, was 3,979.

The museum was visited in the course of the year by His Excellency the Governor, Princes Louis d'Orléans and Henri de la Tour d'Auvergne, and the ladies of the families of the Maharāja of Bobbili and the Rāja of Kālahasti.

2. THEATRE.—The theatre was used on nine occasions as follows:—

Amateur Dramatic Society	3
Madras Collegiate School	3
Madras Musical Association	2
Doveton College entertainment	1

Plans and estimates were, at the suggestion of the Commissioner of Police, provided for the erection of two broad flights of steps, to serve as emergency exits in the event of an outbreak of fire in the theatre; and two corridor fire-engines were provided for the stage.

3. PUBLICATIONS.—The following publications were issued during the year:—

Bulletin, Vol. III, No. 3, Nayars of Malabar, F. Fawcett.

Bulletin, Vol. IV, No. 2. The Dravidian head; Yānādis of Nellore; earth-eating; the couvade; steel-yards; etc.

Catalogue of the collection of prehistoric antiquities, R. Bruce Foote. "The pride of the collection," Mr. Foote writes, "is unquestionably the great series brought together by the late Mr. J. V. Breeks during his very successful exploration of the Nilgiri cairns and barrows".

Monograph on the ivory carving of South India, E. Thurston.

The half-tone illustrations for the bulletins were executed by the Methodist Episcopal Publishing House, and those for the ivory monograph by Messrs. Wiele and Klein, Madras.

4. ANTHROPOLOGY.—By G.O., No. 647, 26th June 1901, I was formally appointed Superintendent of the Ethnographic Survey of the Madras Presidency, to carry out the terms of the resolution of the Government of India for collecting physical measurements of selected castes and tribes by anthropometry, and information as to the manners and customs of the people of South India—work in which I have been primarily interested during the last few years. As an example of the difficulties of an ethnographist in India in abstracting reports, the following note on making fire by friction may be quoted. "They know how to make fire, *i.e.*, by friction of wood as well as stone, etc. They take a triangular cut of stone and one flat oblong size flat. They hit one another with the maintenance of coir or copper, then fire sets immediately and also by rubbing the two barks frequently with each other they make fire."

Two long tours were made in the course of the year: (*a*) to the Bellary district, (*b*) to Cochin, Travancore, and Tinnevelly. In the course of the first expedition halts were made at Hospet, Sandúr and Adóni. At Hospet my measuring operations were regarded with great mistrust, and vaguely connected with the collection of subscriptions for the Victoria Memorial, plague inoculation, and recruiting for the Transvaal war. The fact that head, chest and feet were measured was accepted as evidence that I was an official tailor measuring the men for sepoys' turban, jacket and boots. At Sandúr I was greatly assisted in my work by Mr. Kothandarama Naidu, Dewan of the little hill-girt Maratha State, with whose influence to help me I was enabled to measure and investigate twelve different classes, which included Lingayats, Kurubas, Komatis, Dēvangas and Mādigas. Certain conspicuous variations from the Tamil and Malayalam types of head becoming manifest in this home of the Canarese and Marathas, an adjournment was made to the distant town of Adóni with a view to working them out more in detail on the various weaving castes, Desasta Bráhmans, Komatis, Bédars, Mádigas and Málas. As I have said elsewhere (Bull., Vol. IV, No. 2):—"Accustomed as I am, in my wanderings among the Tamil and Malayalam folk, to deal with heads in which the dolicho or sub-dolichocephalic type preponderates, I was amazed to find, in the course of an expedition in the Bellary district, that the question of the type of the Dravidian head is not nearly so simple and straightforward as I had imagined. To sum up briefly the figures. Whereas in the southern districts 383 out of 420 individuals belonging to sixteen different classes had heads belonging to the dolicho or sub-dolichocephalic types; in the Bellary district the heads belonged to these types in only 170 out of 419 members of fifteen different classes. Further, in the latter, the occurrence of 65 brachycephalic heads against one in the former is, to put it mildly, noteworthy. The problem of the South Indian cranium being thus unexpectedly complicated, it remains to carry out a series of head-hunting expeditions throughout the Canarese and Maratha countries. In this way it will eventually be possible to demarcate with precision the tract through which the short broad type of head prevails, and the source from which it arises."

To the Travancore and Cochin darbars my hearty thanks are due for the valuable assistance and hospitality which were accorded to me during my progress by land and lagoon through those States. To Ernakulam a gang of the tooth-chipping Kādirs of the western ghâts had been specially brought down from the hills for my benefit. At this place, too, the opportunity offered itself to examine and photograph some Tanda Pulaiyans, whose women wear a leafy garment of the sedge (tanda) which grows abundantly along the lagoons and backwaters. When a girl first assumes this clothing

a ceremony called the tanda marriage is performed. Leaf garments are fast going out of fashion, and being replaced by the less picturesque white cotton loin-cloth. At Kottayam a detailed investigation of the Syrian Christians, both northerners and southerners, was undertaken, and photographs thereof were taken, some of which have since been published in Mr. G. T. Mackenzie's monograph entitled "Christianity in Travancore." Of these the most successful were a portrait of the Most Reverend Mar Dionysius, Metropolitan of the Jacobite church, and a picture of the cross and inscription in the Syrian church. At both Kottayam and Trivandrum popular lectures were delivered on "How to study man." During the march through the hills from Trivandrum to Courtallam measurements were taken of the Pulaiyans, Kanikars, and Mala Vēdars, of whom the last, like the Kādirs, have tooth chipping as a tribal custom. The Kanikars are very expert at building huts in trees with branches of trees covered with leaves of *Ochlandra travancorica*, and splendid shots with bow and arrow.

At Nazareth and Sawyerpuram in the Tinnevelly district a large number of measurements of the Shānars were made, and I was daily entertained with gymnastic and athletic sports by stalwart members of the Shānar community. The programme included fencing and exercises with long sticks of iron-wood (*Mesua ferrea*), sword-play, acrobatic feats, chewing glass bottles, swallowing long silver chains, breaking cocoanuts by hand, long jump, falconry, etc.

A brief visit was paid to Chingleput, where the Irulas, Pallis and Agamudaiyans were investigated. The Irulas are interesting from their probable connection with the tribe of the same name which dwells on the slopes of the Nilgiri hills.

On each of the tours I was accompanied by my anthropological assistant and the assistant measurer, of whom the former has learnt to take photographs of the living figure very well. There is one advantage in this, that he is able to secure photographs under conditions in which my personal presence is not welcomed. The museum possesses, as the result of the expeditions in recent years, a collection of 232 selected negatives of native types, and the albums containing bromide or platinotype prints thereof, and of photographs presented by Mr. F. Dunsterville and others, are becoming a valuable record of the physical characters, costume, and dwelling places of man in South India.

Among the additions to the anthropological section may be noted—

Two large screens containing photo enlargements (glass transparencies) of various types of South Indian humanity, and primitive methods of making fire.

Skulls of two jungle Kurumbas, who went after a porcupine into a deserted tunnel on the Glenrock gold-mining Company's land in the Wynaad. The roof fell in on them, and they were buried alive.

Bags, and rolled pith (*Œschynomene aspera*) chaplets worn by Kathira or scissors-people (thief class). In the bags are secreted a little sharp glass knife and other articles constituting their usual equipment.

Implements worn as a chatelaine by Lingayats at Sandúr, and consisting of silver tweezers for removing the thorns of bābūl (*Acacia arabica*) stems, used as fencing for the fields, from the feet; knife, ear-scoop and tooth-pick.

Ear ornaments of small rudraksha (*Elæocarpus*) nuts, silver lingam boxes, and pink silk cloths in which the lingam is carried, as worn by Lingayats of the richer and poorer classes. A series of photographs was taken showing the various positions in which the lingam (the emblem of Siva) is worn, *i.e.*, on the upper arm, neck, chest, and forehead. Some of the silver lingam boxes, which are worn by women as well as men, ornamented with precious stones, are of considerable value.

Seed-drills used by agriculturists at Sandúr, ornamented with carved representations of the sacred bull, Hanuman, and the lingam, and decorated with margosa (*Melia Azadirachta*) leaves, etc., to bring good luck.

Discs cut out of the rind of the bael fruit (*Ægle Marmelos*), and placed between the rudráksha beads in necklets worn by religious mendicants at Sandúr.

Implements used in tattooing by "puppet-show women" at Hospet.

Bamboo forked walking machine used by the Gadaba women of Vizagapatam to teach backward babies to walk by hanging on to a cross bar with their hands, while their feet are on the ground.

Carved wooden images (phallic) of the human figure and monkeys (one bright green with a red face, and eating a green plantain), to ward off the evil eye from newly-built houses in Malabar.

Silver votive emblems (*ex votos*) representing various parts of the human body, etc., presented as thank-offerings for cure from sickness, the winning of a law-suit, or other auspicious events, at Hindu temples in the Tanjore and Malabar districts (*cf.* Elworthy, Horns of Honour).

Syrian Christian tāli (marriage badge), consisting of a gold neck ornament with the sign of the cross in relief.

Flint and steel for making fire, as used by Travancore hill tribes and the Irulas of Chingleput. In many instances the floss of the silk cotton tree (*Bombax malabaricum*) is ignited by the spark.

Apparatus for making fire by friction by the vertical method, and bows and arrows used by Kānikārs, who, in making fire, sometimes use as an impromptu fire-stick the blunt end of an arrow.

Palm-leaf caps and cross-bows used by the Ullādans of Travancore—the only example of a cross-bow which I have come across in S. India.

A primitive form of horologe, used by native physicians and others in Malabar, and consisting of a half cocoanut shell with a pin-hole pierced through its centre. The shell is floated on water, which, entering through the pin-hole, gradually fills the shell. The time is indicated by the sinking of the shell in the water.

Steel-yards or weighing beams (thookookol), used in the Madras and Malabar bazaars, and by native physicians and druggists. In all three varieties the fulcrum is simply a loop of coir or string, which can be slid along the graduated bar. In the simplest Malabar type the pan is made of a cocoanut shell: and, in the most highly finished type, the yard is finished off at the heavy end with a brass finial ornamented with concentric rings, and the hook end terminates in ornamental brass work resembling the crook of a bishop's pastoral staff.

5. Art and Archæology.—The following paintings by Native artists, purchased at the Fine Art Society's Exhibition, or presented to the Society, were exhibited as a loan collection:—

The Jew's hoarded wealth, Ravi Varma (presented).
Sakuntala under the shadow of an impending calamity, Ravi Varma (presented).
Old Rājput gateway, C. Raja Raja Varma.
Animal studies, A. Rama Puthuval (presented).
Study of a boy, C. R. Narainsawmy.
Country carriage, S. D. Satwalcker.
Landscape, S. P. Agaskar.
Bird-catcher woman, K. N. Parameswaram Pillai.
Study of a head, V. N. Mestry.

The series of paintings, which is being brought together as the result of the now annual exhibitions, will be interesting hereafter as showing the early stages in the development of a Native school of painting according to western canons. At present the students of the Sir J. J. School of Arts, Bombay, are, so far as painting is concerned, far ahead of those of the Madras school, where it is still in its infancy, but doubtless capable of development.

Some exceedingly clever plaster busts of Native types by a student of the Madras School of Arts, which formed a conspicuous feature of the Exhibition, are, together with a model of a native village by an artisan in the Kistna district, an unfailing source of delight to the Native visitors to the art gallery. The tinted bust of an old peon at the School of Arts, who for many years has acted as student's model, is an exceptionally clever piece of workmanship, and puzzles the visitors of the uneducated classes.

The museum at present possesses no exhibited series of photographs, other than those relating to ethnology. Material is, however, being gradually collected, and a series of excellent landscapes in the Coimbatore district by Mr. M. Govindasawmy Naidu, a medallist at the Exhibition, has been acquired; and large revolving screens with photographs of architectural views of S. India are in course of preparation.

Among the additions to the art gallery may be noted—

A large répoussé copper jar and panel, and clay model of a temple made at the Madras School of Arts.

Copper and inlaid silver huka tops, and copper betel-box of Persian design.

Sandalwood and ivory box from Vizagapatam, and sandalwood carvings from Mysore.

Stone godlings from Puri (Jugganáth).

Brass incense-burners, lamps, etc., from the Madras bazaar.

Porcelain plate with inscription Bandagan-i-hazrát Nawáb Walajáh Amir-ul-Hind (in the service of His Highness Nawáb Walajáh Amir of India) burnt into it.

Soup-tureen of the 20th Regiment, surmounted by a crown, with crest, and motto commemorating the fighting at Sholinghur and Seringapatam (1781 and 1799).

Old carved chair from a Syrian church at Kottayam.

Musical bow (villu) consisting of a pliant stem with bow-string, 8 feet 3 inches in length, ornamented with brass finials, and with thirteen pendent brass bells, which is rung, together with bronze cymbals and a brass lotah, by the sorcerer during devil-worship in Travancore (*vide* H. Balfour's Natural History of the Musical Bow, 1899).

To the armoury were added a series of East India Company muskets (A.D. 1789 to 1809) bearing the crest of the Company, and a wall piece, more than 11 feet long, from the Bellary Arsenal; and stone cannon balls from Chingleput.

A small collection of neolithic celts, which are considered very valuable as medicine, and sold for two to three rupees each, was received from Upper Burma; and a larger series of quartzite palæolithic implements from the Badvél taluk of the Cuddapah district. As an appendix to the exhibited series of pre-historic pottery, a collection was made, during my wanderings, of pottery utensils of native manufacture used at the present day, which shows the marked variation according to locality in structure, shape, ornamental design, etc. The series, which is capable of great expansion, so far includes specimens from Travancore, and the Malabar, Tinnevelly, and Bellary districts.

The following copper plate grants were returned, after translation, by Dr. E. Hultzsch, Government Epigraphist:—

Three plates of the time of Sasankarája, Gupta samvat 300, from Ganjám (Epigraph. Ind., vol. VI, page 143).

Dandimahadévi's grant, year 180, from Ganjám (Epigraph. Ind., vol. VI, page 133).

Undated grant of Dandimahadévi (Epigraph. Ind., vol. VI, page 140).

Eight plates of Sivaskandavarman from the Kistna district (Epigraph. Ind., vol. VI, page 84). Two plates, dated A.D. 1801, concerning the water-supply of a village near Bapatla in the Kistna district.

Five plates from the Kistna district regarding the grant of the village of Kovilapudi by Rangaraya II of Penukonda, date Saka samvat 1479.

Three vasanta plates of mukunda regarding the grant of the village of Battéru in the Vizagapatam district.

Eight Kondamudi plates of Jayavarman from the Kistna district (Epigraph. Ind., vol. VI, page 315).

An Uriya plate received from the Collector of Ganjám remains untranslated.

6. Numismatics.—To the Travancore Durbar the museum was indebted for specimens of the new silver and copper coinage of the Travancore State, and also for a complete series of gold and silver pattern pieces from dies preserved at the

Trivandrum mint, and described by the Rev. S. Mateer (Madras, Journ. Lit. Science, 1894). An aureus of Augustus, found in S. India and of the following type, was acquired by purchase :

Obv. AUGUSTUS. DIVI. F. Head r. bare.

Rev. Butting bull r. IMP. X.

Some interesting additions to the large existing collection of Indo-Portuguese coins were also obtained by purchase in England. From the Kistna district a series of lead coins of the Andhra dynasty, with figure of a horse and sacred tree on a Buddhist railing, found in a pot while a channel was being dug at Kanchakacherla, was acquired under the Treasure-trove Act. In like manner a find of copper coins of Aurangzib (Hyderabad mint), and rupees of the Emperors Muḥammad Sháh, Aḥmad Sháh, and 'Alamgir, many of which were minted at Imtiyazgarh (Adóni), was obtained from the Pattikonda taluk of the Kurnool district. A miscellaneous collection of copper coins from Trichinopoly included the coin, bearing as emblems a cross and a crude representation of a *fleur-de-lis*, which, it has been suggested, was struck in honour of the French, in the time of Dupleix, by some Native prince, or by the French during one of their short-lived tenures of the Madura country.

From the Bombay branch of the Royal Asiatic Society, among other coins, a rupee of the Moghul Emperor Murad Bakhsh, whose coinage was previously unrepresented in the museum collection, and a rare gold coin of the Chalukyan king Jagadeka Mulla were received. A series of Arakanese and Burmese coins, including some of the symbolical coins described by Phayre (*Numismata Orientalia*), was acquired by exchange.

The museum collection of coins of the Nawābs of the Carnatic was catalogued, and added to the coin cabinets.

7. BOTANICAL AND ECONOMIC.—A collection of marine algæ from Tuticorin, which had been sent to the British museum : natural history : for identification, was returned together with a provisional list thereof by Miss Ethel S. Barton. A number of herbarium sheets of specimens collected when on tour in Travancore were set apart for reference by students. My thanks are again due to Mrs. Bishop for paintings of botanical studies, which adorn the walls of the botany gallery. From the shale-beds of Sriperumbudúr the herbarium-keeper made a small collection of fossil ferns and siliceous wood.

A series of hand specimens of the forest timbers of S. India was presented by Mr. A. W. B. Higgens. A complete list of the economic products, indigenous or very largely used in S. India, was drawn up by the herbarium-keeper as a basis for the thorough re-arrangement and improvement of the economic section, which is confessedly far from up to date, and has been seriously taken in hand. In this connection a large number of specimens, herbarium sheets, photographs, etc., were brought together, and the Board of Revenue has been good enough to arrange with the Forest department for the collection of timber specimens and forest products, such as are required to fill up existing gaps. Migratory locusts (*Acridium peregrinum*) from the swarm which invaded the Kistna district in June 1901, passing from N.E. to S.W. and devoured, *inter alia*, the leaves of casuarina plants, were received, as well as specimens of the same species and *Œdalus senegalensis* from the Gódávari district.

A small, but interesting series illustrating the ravages of tree-borers and plant diseases was presented by Messrs. R. A. and G. Anderson.

Notes on wax-printing and dyeing as carried on at Narsapúr in the Gódávari district and Tirumangalam in the Madura district, were sent to Mr. Rouffaër for his book 'Indische Batik-kunst.'

8. MINERALOGY.—Among the additions to the mineral gallery may be noted—

A series of specimens of magnesite from the "chalk hills," Salem district, and cement made therefrom.

Polished blocks of red granite used for building purposes, from near Adóni Bellary district.

Staurolite with three crystals combined, giving rise to a six-rayed star, which occurs together with kyanite at the Nellore mica mines.

Stilbite (zeolite) from Golapudi, Gódávari district.

A series of specimens of red corundum, and red corundum in calcite, from the Salem district.

Gibbsite, containing 62·8 per cent. of alumina, concerning which Dr. H. Warth writes that it occurs in " a layer one foot thick immediately below the grass mould at Kodaikánal. At one spot near Fern hill about three acres were exposed in excavations for tree-planting. It is a valuable mineral for aluminium making."

Graphite (plumbago) from the Shegundapalli estate, Gódávari district.

Ligneous clay from borings at Calicut in Malabar.

A series of borings from a well at the Rodier mill, Pondichéry.

Specimens of a fossil which is sold in the Bombay bazaar, and was recommended to a friend, together with soap stone (steatite) by a native physician as a cure for dysentery, were sent for identification. They proved to be spines of the echinoderm *Cidaris*, which occurs in the Jurassic formation of Kutch.

9. Natural History.—A leopard cat (*Felis bengalensis*), which died at the People's Park, was added to the collection. To Mr. P. B. Thomas the museum was indebted for a very fine pair of horns of the spotted deer (*Cervus axis*); and horns of the Indian gazelle or chinkāra (*Gazella bennetti*) were presented by Mr. R. Hunter. Specimens of the delicate scooped-out os penis (3·3 cm. long) of a jackal (*Canis aureus*) and of the slender Loris (*Loris gracilis*) 1·5 cm. long and terminating posteriorly in a bulbous swelling, were prepared.

A series illustrating the skeletal structure of the various orders of South Indian birds was exhibited; and the large collection of game birds (ducks, etc.) of Madras and its vicinity, which has been brought together during the last few years, constitutes a valuable addition to the exhibited collection. A pseud-albino coppersmith (*Xantholæma hæmatocephala*) and snipe (*Gallinago stenura*) with abnormally light plumage were secured; and a number of gulls and terns were also obtained locally. A photo-enlargement from a happy snap-shot by Captain R. H. Elliot, I.M.S., of a kite sitting on its nest high up outside the High Court building was exhibited.

A specimen of the big land-snail *Helix basileus* from the Cochin hills was sent to Mr. W. T. Blanford, in order that its anatomy may be worked out, and its affinities determined. Sample pearls obtained from the pearl oysters of the Tuticorin banks in 1901 were received from the Board of Revenue. A small collection of the land and fresh water shells of Madras city was presented by Mr. V. Ramanan.

A specimen of the orange-yellow-handed scorpion from Tinnevelly, which has been named after its discoverer *Palamanœus barberi*, was received; and specimens of the whip-scorpion *Thelyphonus* were sent by the District Surgeon, North Arcot, with a note that they were " reported to be venomous, some natives stating that they sting like a scorpion, others that they eject a slimy fluid which burns." The caudal flagellum of Thelyphonus, of course, possesses no poison apparatus. A limited fund was placed at the disposal of Mr. K. Ramuni Menon, lecturer on zoology at the Presidency College, for the purpose of marine dredging off the littoral of Madras. The results already obtained render it eminently desirable that dredging operations should be systematically continued over a long space of time with a view to both the publication of a detailed account of the local marine fauna, and the collection of an exhaustive series illustrative thereof for the use of the college students, and for exhibition at the museum. How rich the fauna of the Madras harbour is was shown by the beautiful collection of marine life which was brought together for the recent practical examination in zoology at the Madras University.

The small collection of live animals continued to be, as usual, a source of immense attraction. Among the additions during the year may be noted a large rock-snake (*Python molurus*) which laid eight eggs soon after her capture; a frog (*Rana hexadactyla*) with a third median hind limb; scorpions from the city of Madras; and a melanotic variety of the common palm squirrel (*Sciurus palmatus*) from Pulicat.

A rat-snake (*Zamenis mucosus*) laid eight eggs; *Lycodon aulicus* four eggs; and *Tropidonotus piscator* 48 eggs. Two cobras (*Naia tripudians*) were exhibited together in one cage. In the course of feeding, each seized hold of a single rat, with the result that the larger cobra swallowed the smaller one together with the rat. The prehensile teeth of snakes being directed backwards, struggling prey once caught in the mouth cannot escape, and must inevitably be swallowed. To the cobra cage were attached enlargements of cobras with hood expanded, from remarkably good negatives by Captain F. D. S. Fayrer, I.M.S.

10. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 13,819 against 13,284 in the previous year—

Smallest number of readers	on any day	.. ..	3 *
Largest	„ on „	.. ..	151
Smallest	„ on Sunday	.. ..	23
Largest	„ on „	.. ..	88

* Cyclonic storm.

The total number of volumes given out to readers was 17,382 against 14,547 in 1900-1901.

The number of standard works added to the library was 314, of which 284 were acquired by purchase and 30 presented.

White-ants again made their appearance in several book cases, to which they on more than one occasion gained access through the roof. As a general indication of the class of literature resorted to by readers, I append a list of books issued during the last two years under each of the subject catalogue heads:—

	1900-1901.	1901-1902.
Anatomy; biology; natural history; zoology	549	895
Anthropology; folk-lore	545	525
Archæology; architecture	230	359
Arts; industries	270	232
Atlases and maps	101	84
Botany; arboriculture; horticulture	199	224
Belles lettres	580	1,188
Chemistry; agriculture	219	251
Classics	243	317
Dictionaries; encyclopædias; gazetteers, etc.	2,036	3,308
Economic products; economic entomology	111	49
Education; ethics; logic; metaphysics; philosophy; political economy	1,294	1,495
Exhibitions	95	72
Forestry; timbers	49	31
Geography; physical geography; physiography	63	68
Geology; palæontology	67	53
History	836	2,415
Jurisprudence	172	373
Microscopy	8	37
Medicine; surgery; pathology; etc.	274	367
Mineralogy; metallurgy; petrology	64	37
Natural philosophy	513	418
Numismatics; medals	61	128
Philology; epigraphy	206	262
Photographs	39	36
Physiology	158	155
Public health	263	278
Religion	448	704
Sports and games	325	292
Travels; voyages	384	428
Fort St. George Gazette (other than current issues) ..	665	688
Vernacular languages	98	104

In the above list the most conspicuous feature is the large increase in references to dictionaries and gazetteers, belles lettres and history. Various art journals, which are now placed on the library table, are much appreciated.

The preparation of a new edition of the library catalogue (1894) was taken in hand, and the manuscript slips were finished as far as letter R at the close of the year.

11. VALUABLE STOCK.—The necessary inventory was maintained, and duly checked.

APPENDIX A.

Donations, 1901–1902.

Anderson, Messrs. R. A. and G.—
Series illustrating ravages of tree-borers and plant diseases.

Barber, Mr. C. A.—
Photograph of Khonds dressed for peacock dance.
Scorpion.
Millipedes.
Snake.

Bellary Arsenal—
Muskets and wall pieces.

Bobbili, Kumara Raja—
Gadaba flute.

Bonner, Mr. H. G.
Red spur fowl (Galloperdix spadicea).

Cardozo, Mr. H. O. C.—
Locusts (Acridium æruginosum) from Ramnád, Madura district.

Chingleput District Judge—
Copper plate grant in three sheets.

Coombes, Mr. J. W.—
Maundy money. Last Victorian issue.

Cuddapah Collector—
Palæolithic implements found in the Badvél taluk.

Dinakar, Mr. J. N.—
Sand-snake (Eryx Johnii).

Dunsterville, Mr. F.—
Photographs of native types of South India.

Eyre, Colonel Gervas.—
Prehistoric celts from Burma.
Coins.
Siam Tical.
Arakan Sanda.
Thudama, 1014.
Mindou Mir lion, 1228.
Peacock, 1214.
Thebaw, 1240. Quarter anna brass.

Ganjám Collector.—
Copper plate inscription.

Gillespie, Mr. J. T.—
Old country gun from Malabar.
Country-made sword-stick from Malabar.

Gordon, Woodroffe and Co., Messrs.—
Red corundum from the Námakkal taluk, Salem district.

Hall, Mr. R. E. C.—
Snake (Oligodon venustus).

Hatchell, Mr. D. G.—
Rock snake (Python molurus).

Higgens, Hon'ble Mr. A. W. B.—
Sixty-four specimens of forest timber sections.
Magnesite.
Magnesite showing marks from the slipping of strata and the action of water. Crystalline rock with a thin vein of magnesite, and calcined magnesite.
Serpentine.
Cement made from magnesite from Mr. Turner's Works near Salem.

His Highness the Rajah of Cochin.—
Leaf insect.

Hultzsch, Dr. E.—
Copper plate grant. Kondamudi plates of Jayavarman.

Hunter, Mr. R.—
Horns of Gazella Bennetti.

James, Mr. J. A.—
Ligneous clay from boring at Calicut.

APPENDIX A—*cont.*

Kistna, Collector—
Lead coins (type horse with tree on Buddhist rail).

Kurnool, Collector—
Copper coins of the Mogul emperor Aurangzib, Hyderabad Mint.
Rupees of the Mogul emperors, Muhammad Sháh, Ahmad Sháh and Alamgir II.
Gold pagoda of the Vijayanagar dynasty found in the Pattikonda taluk.

Kurnool, District Forest-officer—
Timber plank, Diospyros melanoxylon.

Lakshminarasinga Row, Mr. J.—
Locusts (Acridid sp.).

Lancaster, Lieutenant-Colonel J.—
Arachnid (Thelyphonus sp.).

Lewis, Mr. J. P.—
Stone cannon balls from Chingleput.

Loventhal, Rev. E.—
Skull of jackal with spurious horn (narikumpu) made by Kooroovekaran.

Municipal Commission, Madras—
Tiger (Felis tigris).
Leopard cat (Felis bengalensis).
Indian bear (Melursus ursinus).
Orang-utan.
Crocodile (Crocodilus palustris).
Flamingo (Phœnicopterus roseus).
Parakeet.

Mysore Palace Division, Executive Engineer—
Collection of polished building stones.

North-Western Provinces and Oudh Government—
Silver coin of Asata Pála, king of Kábul.
Copper coins.

Ramasawmy, Mr. B.—
Purses and chaplet of pith worn by Kathira or scissors people of the Nellore district.

Reynolds, Mr. S. H.—
Photo-enlargements. Backwater, Trivandrum and Hindu temple.

Royal Asiatic Society (Bombay Branch)—
Gold and silver coins of Muhammad bin Tughlaq.
Silver coins of Ghiyas-ud-din Tughlaq Sháh, Ala-ud-din Muhammad Sháh, Kutub-ud-din Mubárak Sháh, Ghiyas-ud-din Balban, the Mogul emperor Murad Baksh, Muhammad bin Tughlaq, Shah Jehán.
Copper coins of Muzaffar III of Gujarat found in the Ahmedabad district.
Gold coin of Jagadeka Malla of the Chalukya dynasty, 12th century A.D., found in the Bijapur district.
Silver coin of Shah Jehán.
Coins of Aurangzib found in the Ratnagherry district.
Jehanghir: silver coin found in the Ahmedabad district.

Royal Botanical Gardens, Calcutta—
Two hundred and forty-six sheets of botanical specimens (flowering plants of North India).

Sandúr, Dewan—
Models of wrestlers.

Salem, Collector—
Rupees of Tipu Sultan.
Half pagoda of the East India Company—
Quarter pagodas of the East India Company found at Pagalpatti, Salem taluk.

Spring, Mr. F. B.—
Stone godlings from Puri.

Superintendent, Natal Emigration Depot—
Tse-tse fly (Glossina morsitans).

Taylor, Mr. R. S. M.—
Hyderabad copper coins.

Thomas, Mr. P. B.—
Head of spotted deer (Cervus axis).

APPENDIX A—*cont.*

Travancore Government—
Coins. Two and one chuckrum silver pieces.
„ Eight and four cash copper pieces.
Pattern pieces for Travancore coinage.

Trivandrum Museum—
Model of Cobra.

Welchman, Mr. T. H.—
Snail (Helix basileus).

Worket, Mr. F. E. L.—
Cobra (Naia tripudians).

APPENDIX B.

CLASSIFIED LIST of EXPENDITURE of the GOVERNMENT MUSEUM during the year 1901–1902.

	Actuals, 1901–1902.	Revised estimate, 1901–1902.
Salaries—	RS.	RS.
Superintendent	9,600	9,600
Exchange compensation allowance	600	600
Local allowance	2,400	2,400
Total ..	12,600	12,600
Permanent establishment—Government Museum—		
Herbarium-keeper, first assistant, second assistant, senior, second and third taxidermists, artist, writer, assistant writer, fifteen hamals, six gallery attendants, Superintendent's peon, door-keeper, chickledar and two peons—35 persons	7,321	7,362
Permanent non-pensionable establishment—Government Museum—		
Three gardeners, three sweepers, five watchmen, water-pandal Brahmin, punkah-puller and chockra—14 persons	968	970
Permanent establishment—Connemara Public Library—		
Sub-Librarian, three attendants and two peons—six persons	2,617	2,621
Permanent non-pensionable establishment—Connemara Public Library—		
Servant (sweeper)—1 person	48	48
Total, Establishment ..	10,954	11,001
Allowance—		
Travelling allowance	1,160	1,200
Supplies and Services—		
Cost of specimens purchased on tour	894	900
Objects of interest and coins purchased at head-quarters.	703	700
Fittings, furniture, &c., for the collections	2,304	2,400
Cost of books and publications	899	900
Library	1,994	2,000
Lithographic plates	500	500
Ammunitions	..	15
Charges for feeding live animals	249	275
Expenses—		
Reading coins	..	10
Measurement	2	50
Total, Supplies and Services ..	7,545	7,750

APPENDIX B—*cont.*

Classified List of Expenditure of the Government Museum during the year 1901-1902—*cont.*

	Actuals, 1901-1902.	Revised estimate, 1901-1902.
Contingencies—	RS.	RS.
Purchase of furniture	292	140
Landing, shipping and freight charges	41	31
Repairs to furniture	87	100
Cleaning charges	68	95
Postage „	241	300
Telephone „	160	..
Telegraph „	26	20
Rents, rates and taxes	3,843	3,843
Liveries and clothing of servants	57	90
Office expenses, including such articles as gum-pots, rat-traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vinegar, water-pots, ropes, match-boxes	626	645
Tour charges	191	285
Miscellaneous	..	..
Total, Contingencies ..	5,632	5,549
Grand Total ..	37,891	38,100

ORDER—No. 491, Educational, dated 18th August 1902.

Mr. Thurston's report of the institutions under his charge is, as usual, full of points of interest.

2. The museum continued to be popular and the visitors to the buildings appear to have numbered about four hundred thousand.

3. Mr. Thurston's appointment as Superintendent of the Ethnographic Survey of the Madras Presidency will enable him to continue more systematically the investigations to which he has for years past given special attention. His remarks in regard to the assistance and hospitality afforded him during his tour in Travancore and Cochin will be communicated to the Political department for the information of the Darbars of these States.

4. Many valuable and attractive additions were made to the several collections under the Superintendent's care. The Governor in Council will be glad to consider any proposals which may be made in regard to increasing the fund for dredging operations off the littoral of Madras; he notes with special interest what Mr. Thurston observes in respect to the richness of the fauna of the Madras harbour.

5. The Connemara library made fair progress and the number of readers slightly increased.

6. The Government are indebted to Mrs. Bishop and others who have rendered help to the Superintendent or presented donations, and to the Darbar of Travancore for their valuable numismatic contributions.

(True Extract.)

H. A. STUART,
Ag. Secretary to Government.

MADRAS: PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS.

REPORT ON THE ADMINISTRATION

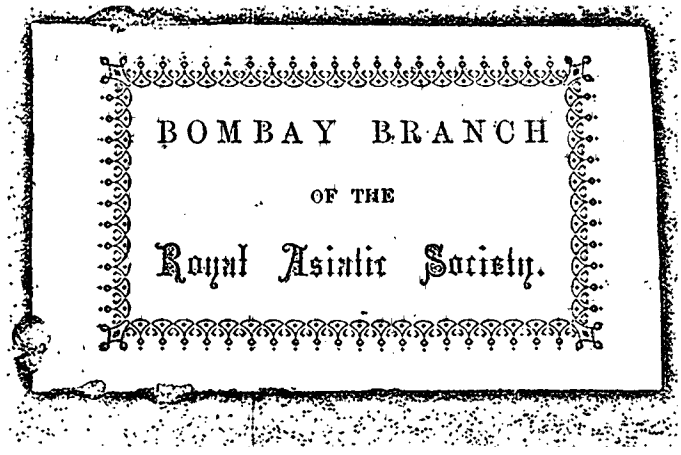
OF THE

GOVERNMENT MUSEUM AND CONNEMARA PUBLIC LIBRARY

FOR THE YEAR

1902-1903.

Not for sale.


BOMBAY BRANCH
OF THE
Royal Asiatic Society.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper:—

From E. THURSTON, Esq., Superintendent, Government Museum, Madras, to the Secretary to Government, Educational Department, dated Pantheon Road, Egmore, Madras, 7th July 1903, No. 27-B.

I have the honour to forward, for submission to His Excellency the Governor in Council, my report on the working of the Government Museum and Connemara Public Library during 1902–1903, and to request that I may be supplied with 160 copies for distribution to other museums, etc.

ENCLOSURE.

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM FOR THE YEAR 1902–1903.

1. VISITORS.—The total numbers of visitors to the museum old and new buildings were 375,725 and 393,419 against 410,436 and 398,822 in 1901–1902.

The largest number of visitors on a single day was 62,154 to the old and 64,173 to the new building at the feast of Pongal. The numbers of visitors on Sundays were 75,334 to the old and 76,862 to the new building. The number of gosha female visitors, on the monthly Saturdays set apart for them, was 1,235.

The museum was visited during the year by Their Highnesses the Gaeckwar and Maharani of Baroda and the Náwab Bégam Sáhibá.

2. THEATRE.—The two broad flights of steps, referred to in my last report, were constructed, and have proved to be a very great convenience on the occasion of entertainments.

The theatre was used on eleven occasions as follows:—

Amateur Dramatic Society	6
Madras Collegiate School	2
Madras Musical Association	3

3. BUILDINGS AND ESTABLISHMENT.—The entire re-roofing of the library and theatre, both of which leaked very badly, was in progress at the close of the year. The Government expressed its willingness to grant, at the request of the Victoria Technical Institute Council, a site in the museum grounds for the Victoria Memorial. An exhibition hall of indigenous industrial arts, such as is under contemplation, will be a most fitting companion to the existing art section of the museum, and it will be situated in a public place, which is largely resorted to by Natives of all classes, and also by "cold weather" visitors to the city.

51
10

The herbarium-keeper, Mr. K. Rangachari, was appointed to officiate as lecturer on botany at the Presidency College during the absence of Dr. Bourne, in addition to his own duties. The artist retired on pension owing to failing health.

For some time past I have been disturbed by the occurrence of thefts—a sword, silver filigree ware, and padlocks—in the museum building. On the penultimate day of the year a Muhammadan "visitor" to the old building was neatly caught by the personal assistant in the act of taking out of the building a series of pieces of mica, which had, he said, been given to him by one of the gallery attendants (for the adornment of a tiger's tail in connection with the Moharrum). The Muhammadan was sentenced to two weeks' rigorous imprisonment, and the gallery attendant discharged with the remark that his conduct was very suspicious.

4. Conversazione.—A scientific conversazione was, on the initiative of Mr. J. A. Jones, held in the Connemara Library and anthropological laboratory, and opened by His Excellency the Governor. It proved, both popularly and financially, a conspicuous success, and the public owe a debt of gratitude to the numerous members of the medical, educational, public works, telegraph and light-house departments, and others who devoted themselves to the preparation and explanation of the exhibits in their respective charges. Among the most popular of these exhibits were X-rays, wireless telegraphy, filarial mosquitoes, physical tests and pseudoptics.

5. Delhi Exhibition.—I was deputed to officiate as one of the judges at the Art Exhibition. The opportunity was taken to make sundry purchases of South Indian art wares, which included carved doors from Bellary and Travancore, brass and zinc ware from Kurumballur, Trichinopoly district; green pottery from Karigeri, North Arcot; carved cocoanuts and coco-de-mer from Travancore and the Cannanore jail; old ivory playing cards from Travancore; an ivory veneered box from Vizagapatam, and a magnificent sandalwood casket from Mysore with hunting scenes, for which a gold medal was awarded. A loan collection of arms from the Tanjore armoury, palempores, metal ware, sandal carving, and lacquer ware was sent to the exhibition.

6. Ethnology.—Bulletin, Volume IV, No. 3, dealing with marriage customs in Southern India; deformity and mutilation; Urális, Sholagas and Irulas; fire-walking in Ganjám; and corporal punishment in vernacular schools, was issued. A further Bulletin, dealing exhaustively with the Lingáyats of the Madras and Bombay Presidencies, was in proof at the close of the year.

My work in connection with the ethnographic survey was materially helped by notes on tribal manners and customs received from many correspondents, both European and Native, whose assistance I gratefully acknowledge.

At head-quarters the physical measurements of the local Kannádiyans (Lingáyat curd sellers) and Chakkiliyans were recorded. The extent to which the Chakkiliyan males were tattooed was very marked. Two tours were made in the course of the year. During the first of these the physical measurements of the jungle Urális and Sholagas of the Coimbatore district were examined by myself, and their visual acuity, colour-vision, etc., by Dr. W. H. R. Rivers of Cambridge. It took many months before confidence was restored among these primitive folk, who, as a report records, "could not understand why the measurements of the different organs of their bodies were taken; perhaps to reduce or increase the size of their bodies, to suit the different works which they were expected to do near London." They believed, too, that the variously coloured wools, given to them for selection, were for tying them captive with. I accompanied Dr. Rivers to Ootacamund, there to introduce him to the Todas, a study of whom was the immediate object of his visit to Southern India. A prolonged halt was subsequently made at Coimbatore, where the Kaikólans, Oddes (Wudders), Okkiliyans (Vakkaligas), Toreyans, Sédans, Pallans, and Idaiyans were investigated. The Oddes unfortunately all have the title Boyan added to their names, and a fatal rumour was spread among them that the object of my visit was to transport the strongest among them to South Africa, to replace the Boers who had been killed in the war. My evil eye was cast on them, and they refused to fire a new kiln of bricks for house construction till my departure from their midst. The approach of the cranium towards the brachycephalic type, which I have previously noted as occurring among the Canarese, was again brought out at Coimbatore in the Canarese classes which have emigrated to the Tamil country from their original home.

In the enquiries concerning manners and customs, a novel and eminently effective method of arriving at the truth concerning tribal ceremonials was resorted to, marriage and death ceremonies being acted in the form of theatricals in which each performer at the real ceremony was represented by a member of the class concerned. In this way the interest was thoroughly sustained, and the fatigue, which, soon supervenes among illiterate people when they are interviewed, was avoided. Moreover, apparently trivial, but really important points of detail were clearly brought out in a manner which is impossible by mere oral examination. I have myself had to play the part of maternal uncle, and, as representing the swámi, to receive the obeisance of the mock bride. The leading rôle of corpse at a funeral was played either by an elderly man, or by a clay votive figure purchased from a local potter. The pupils of the eyes of these figures are not painted in till they are taken to the temple, where púja is done to them, as it is the painting of the eyes which endows them with life. Even the pupils of a series of these idols, which were specially made for me, were not painted at the potter's house, but in the verandah of the rest-house where I was staying.

Among the numerous additions to the ethnological section, the following may be noted:—

A remarkable example of the survival of witchcraft in the form of a human female figure over 5 feet in height, carved out of soft white wood (*Alstonia scholaris*), which was recently washed ashore at Calicut on the Malabar coast. Inscriptions were scrawled all over it in Arabic characters, nails had been freely driven in all over the head, body and limbs, and a large square hole cut out above the umbilical region. By a curious coincidence, the corpse of a man was cast ashore near the figure, which was no doubt made to nail an evil spirit to.

Wooden votive offerings in the form of quaint lizards, parrots, peacocks, human beings, musical horns, pick-axes, daggers, guns and swords, which are dedicated by the Savaras of Vizagapatam to the tribal deity. They would not sell them to the district officer, but parted with them on the understanding that they would be worshipped by the Sirkar.

Silver votive offerings, representing various portions of the human body, from Vaithisvarankoil, the Vaithisvaran temple, Tanjore, Periapalayam temple, Chingleput, and Coimbatore. For comparison with these indigenous *ex votos*, I received from Mr. Balfour, of the Pitt Rivers Museum, Oxford, a series of allied offerings from a Roman Catholic church at Antwerp.

Instruments of torture worn by pilgrims to the shrine at Palni, consisting of a silver mouth lock with a skewer passed through both cheeks so as to traverse the mouth cavity; a silver arrow, with which the protruded tongue is pierced; and a silver plate tied over the mouth.

Miniature silver kávadi, carried by females and young persons going to Palni, and miniature silver crown given by pilgrims as a votive offering to the god.

Block and chain, consisting of a block of heavy wood, shaped like an Indian club, to which is attached a strong iron chain. The free end of the chain is fastened by a padlock to the leg of a truant schoolboy or lazy artisan's apprentice, who has to drag the block about with him. Some years ago a native of Madura, whose young wife was fond of gadding about, punished her by making her drag about a log chained and padlocked round the ankle.

Katar (dagger) carried with a lime stuck on the point by the Okkiliyar's bridegroom during the marriage ceremony.

An ingenious form of dry cupping apparatus used by Dommara medicine men. A small incision is made with a piece of broken glass over the affected part, and the skin damped with water. The distal end of a cow's horn, the tip of which has been removed, plugged with wax, does duty for the cup. A hole is pierced through the wax with an iron needle, and the horn being placed over the incision, the air is withdrawn from it by suction with the mouth, and the hole in the wax stopped up. After the necessary time has elapsed, the wax is again pierced, and the horn removed. In a bad case, as many as three horns may be applied simultaneously.

Leather sandals, 26 × 14 inches, presented by Mádigas at the Tirupati shrine. The god at the Aligiri dévastanam appears annually to four Mádigas in different directions, north, south, east and west. Rice-flour is spread by them on the floor of a room, which is locked for the night. Next morning the impression of a huge foot is found on the floor, to fit which a shoe has to be made. When ready, it is carried in procession through the streets of the village and conveyed to Tirupati, where it is placed in front of the image of the god, and is said to gradually wear away by the end of the year. Though the makers of the shoes have worked in ignorance of each others' work, the shoes brought from the north and south, and those from the east and west are believed to match and make a pair.

Musical instrument (pot drum—Pulluva kudam), which is used at a ceremony in Malabar called Pámbantullel (snake-jumping). When a family is troubled by the presence of snakes on the premises, a female member of the family sits in front of a snake designed on the floor in rice-flour, burnt paddy husk, turmeric and green leaves. The Pulluvan plays on the drum while a Pulluva woman keeps time with the music by striking a metal vessel. Gradually the seated woman becomes possessed and begins to quiver, while waving her dishevelled locks. Moving backwards and forwards, she rubs away the figure of the snake with a bunch of cocoanut flowers. The ceremony may have to be repeated a very large number of times. The Pulluvan, from whom the drum was purchased, was very reluctant to part with it, lest it should be handled and polluted by the touch of an impure female.

Plaster model of a platyrhine Dravidian by a student of the School of Arts.

Apparatus used by tattooing women at Coimbatore. The powders are kept in the scooped out fruits of the palmyra palm and bael (*Ægle Marmelos*), the needles in a hollow bamboo, and the ink is mixed up in a half cocoanut shell.

Model showing the system of pegging adopted by the Kádirs of the Anaimalai hills for climbing lofty forest trees, which is interesting as corresponding in detail with the method employed by the Dyaks of Borneo; and primitive Kádir rat-trap.

The museum was indebted to Mr. B. Macleod for a collection of palæolithic implements from the Pennar valley, Cuddapah district, and to Mr. Seton-Karr for a few selected specimens of such implements from Pundi near Tiruvallúr, North Arcot. A few interesting fragments of pottery from the cairns at Palamalai, Palni hills, were presented by the Rev. H. Hosten.

To the anthropological laboratory were added a set of Holmgren's wools, a series of pseudoptics (illusions), Lovibond's tintometer, and Cohn's tafeln zur prüfung der sehleistung und sehschärfe.

7. Art and Archæology.—The following paintings by Native artists, purchased at the Fine Arts Exhibition, or presented to the Society, were added to the loan collection:—

A retired sepoy, Ravi Varma (presented).
Three sketches, M. V. Dhurandhar.
Sakuntala at the Court of Dashyanta, M. V. Dhurandhar.
An old trapper, Dastagir Khan.
Study of a lady, C. Gurunathim Raja.
Brahman lady, K. R. Gholap.
Seascape, K. R. Gholap.
Study of a head, K. R. Gholap.
A beggar, M. Pithawalla.
Indian opium-smokers, H. Roy.
Old mosque, Madras, C. Raja Raja Varma.
Maratha cooly boy, G. V. Mankar.
Flowers, G. V. Mankar.
In a quiet corner, T. A. Gopinatha Rao.

The personal assistant was deputed to visit Tirupati, Kalahasti and other places with a view to acquiring a collection of selected examples of old wood-carving such as was formerly used for architectural purposes, to serve as types of purity of Hindu

design unadulterated by western influence. A small but valuable series of doors, lintels, pillars, plaques, etc., was in this way brought together. From Tirupati were also obtained a series of mythological human figures and animals carved in red sanders (*Pteocarpus santalinus*) or white (*Wrightia tinctoria*) wood, which are sold as votive emblems to pilgrims who visit the sacred hill. The figures are rough in finish but executed in a bold free style, and the industry is in a flourishing condition.

A series of daggers, pistol, sword and katar of the Nawábs of the Carnatic was acquired by purchase. The weapons bear the Hindustani legends Amir-ul-Hind Walajah Nawáb and Sirkar Nawáb Walajah Bahádur, and the date.

A collection of framed photographs illustrating Dravidian architecture was exhibited in a large revolving stand with screens.

A large carved stone figure of Narasimha from Hampi (Vijayanagar) was received from the Archæological Department.

A monograph on the wood-carving industry was in course of preparation at the end of the year, in connection with which an admirable series of photographs illustrating the sandalwood carving of Mysore was received through the kindness of the Mysore darbar.

At the suggestion of the Superintendent, Archæological Survey, it was decided by the Government that the copper-plate grants, which are lodged in many of the district offices of the Presidency, should be transferred to the museum on the understanding that, in the event of a particular copper-plate being required as evidence in a court of law or for other purposes, arrangements can always be made for its temporary withdrawal from the museum. In the course of the year copper-plates were consigned to the museum by the Collectors of the Bellary, North Arcot, Salem, Trichinopoly, Tanjore, Madura and Tinnevelly districts. Three copper grants were also received from the District Court of Chingleput and recognised by Dr. E. Hultzsch, Government Epigraphist, as being probably forgeries, the donor claiming that his chariot bore the banner of a hawk (sâlva), which connects him with the Sâlava chiefs.

8. Numismatics.—A series of coins, required to fill up many existing gaps in the Indo-Danish collection, was acquired by purchase. Coins of the Vijayanagar dynasty were received from the Collector of the Bellary district and Bombay branch of the Royal Asiatic Society. A number of rupees struck in the name of the Emperor Sháh 'Álam, of the Benares mint and various dates, were presented by the North-Western Provinces Government. Of a small collection of copper Moghul coins, dug up at Adóni, in the Bellary district, some were identified by Dr. Bloch as being issues of Aurangzíb, of the Hyderabad mint, A.H. 1103, and one as of the same Emperor and Surat mint (regnal year 15).

A collection of bronze and silver Indian war medals, which includes the silver Seringapatam medal, 1799, was presented by the Military Department of the Government of India.

9. Economic and Botanical.—The rearrangement of the economic section was systematically continued during the year. It is proposed to bring together therein all the indigenous raw economic products and some of the more important imported products which are widely used in Southern India. There will be two main sections, one comprising an index series containing the products arranged in alphabetical sequence, the other consisting of the products grouped together according to their uses. At present a portion of the index series and the collections of medicinal products, fibres, dyes and tans, gums and resins, condiments and spices, narcotics and cereals have been arranged. To render the whole series more attractive and useful, it is proposed to attach to the show-cases framed herbarium sheets, paintings, and photographs illustrating the more important products. It is further proposed to exhibit a series of manufactured articles which are used, *e.g.*, for domestic purposes, toddy-tapping, spinning cotton and coir, etc. Specimens of products are collected both locally in Madras and in the course of my wanderings, and many valuable additions have been received through the Forest department.

A further series is being organised to illustrate, as exhaustively as possible, the timber resources of the Madras Presidency. For this purpose a very large number of timber sections have, by arrangement with the Board of Revenue, been

received from Forest officers in all parts of the Presidency, whose assistance and co-operation I very gratefully acknowledge. The sections are in the form of logs, with the bark entire, and will be exhibited so as to show the characters of the bark and the sectional appearance of the wood (vertical, transverse and oblique). A very interesting series of teak (*Tectona grandis*) sections from the plantation at Nilambúr, Malabar, was presented by Mr. H. A. Gass. The series consists of twenty-two logs, illustrating the growth of eleven trees, of which the oldest was planted in 1842 and the youngest in 1897. Of these, the former measures 7′ 2″ in circumference and 2′4″ in diameter, and represents the growth of teak in Southern India, under favourable conditions, in half a century. To Mr. Gass I was still further indebted for an entire sandal (*Santalum album*) tree, with its branches complete, which is said to have been the largest example of this species growing in a wild state in the forests of Coimbatore. In the case of the more valuable timbers, a series of panels will be prepared and exhibited, so as to enable those interested in the timber trade to judge of their characters and possibilities. A further series, consisting of micro-photographs illustrating the minute structure of various timbers, is in course of preparation.

Seven water-colour paintings of botanical studies by Mrs. Bishop were added to the botanical gallery. A complete set of herbarium sheets, illustrating the flora of Madras and its vicinity, as well as specimens collected on tour in the Coimbatore district, have been added to the herbarium, and set apart for study by students and others. A detailed list of the economic products, and phanerogamic plants growing in and around Madras, with full descriptions, is in course of preparation.

10. Mineral Gallery.—Among the additions may be noted—

A sample of the liquid mercury, discovered at Sheitan kunnu (devil's hill), Edakád, Malabar, during the construction of the new railway.

A series of polished building-stones, including the beautiful porphyritic granites, from Chamundi, Seringapatam, and other localities in the Mysore province, which are being used in the construction of the Maharája's new palace at Mysore.

A series of clays and rock from borings of a well near Pondicherry.

Felspar with mica, from the Hope quarry, Marupur, Nellore district.

Calcite from old workings near Yercaud, Shevaroy hills; and also from the calcite beds of the Sivagiri estate, Tinnevelly.

Specimen of a calcareous bed in which fossil marine mollusca (especially *Turritella*) abound, above the marine formation of sandstone on a hill near Punjid, Gódávari district.

Pseudomorph of pyrites after some woody material, probably deposited round a hollow stick with small twigs or grass inside it, from Quilon, Travancore.

Samples of laterite were sent, for the purpose of quantitative analysis, to Dr. H. Warth, who is investigating the possibilities of laterite as a source of aluminium.

11. Natural History.—A very fine "bison" (Gaur. *Bos gaurus*) skull, which was picked up by a jungle-man near the Periyár, was acquired by purchase. The measurements (Asian, May 3, 1902) are—

Across sweep: well over	45¾ inches.
Right horn	18 ,,
Left ,, ...	18½ ,,
Between the tips	39 ,,

Skeletons of the Indian gazelle (*Gazella bennetti*) and the Nilgai or blue bull (*Boselaphus tragocamelus*), were presented by Mr. H. S. Ferguson of the Trivandrum museum.

Photographs of a spotted deer (*Cervus axis*) and cobras (enlargements, life size) were presented by Captain Fayrer, I.M.S., and enlargements of recently slain "bison", bear, and Nilgiri wild-goat (*Hemitragus hylocrius*: ibex) by Mr. H. D. Deane.

From the College of Engineering, Roorkee, some excellent photo-enlargements of elephant keddah operations were received. A large model, illustrating the method of capturing wild elephants in, and extracting them from pits on the Anamalai hills, was made for me under the direction of Mr. H. A. Gass, Conservator of Forests.

A specimen of the beautiful ruddy kingfisher (*Callialcyon lilacina*) was secured at Gúduvánchéri in the Chingleput district in the month of November. Its record from Southern India is of interest, as its distribution, as given in the Fauna of British India, is confined to the lower Himalayas, Nepal, Sikkim, Assam, Burma, the Andamans, and the far east. As an addition to the exhibited collection of birds a series of wings of the bright-plumaged birds of Southern India were prepared and mounted on shields. A white-breasted water-hen (*Amaurornis phœnicurus*), with its reed nest and eight eggs, was mounted in a table case.

An interesting specimen, which has been preserved in spirit, was received from Negapatam in the shape of a cobra (*Naia tripudians*) caught in the act of swallowing a Russell's viper (*Vipera russellii*), whose caudal end alone was protruding from the mouth of the cobra.

A magnificent specimen of the crustacean *Palæmon carcinus* Fabr. from Travancore was presented by Mr. H. S. Ferguson.

Spirit specimens, illustrating the cornified papillæ which line the cavity of the æsophagus of the turtle (*Chelone mydas*), and the tongue of the flamingo showing the sharp recurved spines with which it is studded, were exhibited.

To the small collection of live animals, of which the popularity is great, were added during the year:—

Albino variety of the common striped squirrel (*Sciurus palmarum*) from the vicinity of the Lunatic Asylum, Calicut, where several other specimens of this variety have been caught; and melanotic and light brown varieties of the same animal from the vicinity of Madras.

Large Indian squirrel (*Sciurus indicus*).

Bronze-winged doves (*Chalcophaps indica*), large Andaman paroquets (*Palæornis magnirostris*), and blue-winged paroquets (*Palæornis columboides*).

Spotted-billed ducks (*Anas pœcilorhyncha*).

New houses were erected in the grounds, on either side of the main entrance, for doves, sand-grouse, and pigeons illustrating variation under domestication.

12. Connemara Public Library.—The total number of readers during the year was 14,829 against 13,819 in 1901–1902:—

Largest number of readers in a day	..	..	187
Smallest „ in „	..	..	9
Largest „ on Sunday	..	..	137
Smallest „ on „	..	..	29

The total number of volumes given out to readers was 18,717 against 17,382 in 1901–1902.

The number of standard works added to the library was 393, of which 316 were acquired by purchase and 77 presented.

As a general indication of the class of literature resorted to by readers, I append a list of books issued during the last two years under each subject catalogue head:—

	1901–1902.	1902–1903.
Anatomy; biology; natural history; zoology	895	856
Anthropology; folklore	525	493
Archæology; architecture	359	487
Arts; industries	232	209
Atlases; maps	84	57
Botany; arboriculture; horticulture	224	78
Belles lettres	1,188	1,555
Chemistry; agriculture	251	183
Classics	317	216
Dictionaries; encyclopædias; gazetteers	3,308	4,345
Economic products	49	81
Education; ethics; logic; metaphysics; philosophy; political economy	1,495	1,956
Exhibitions	72	73
Forestry; timbers	31	12
Geography; physical geography; physiography	68	59

	1901-1902.	1902-1903.
Geology; palæontology	53	73
History	2,415	2,306
Jurisprudence	373	758
Medicine; surgery; pathology	367	428
Mineralogy; metallurgy; petrology	37	55
Natural philosophy	418	388
Numismatics; medals	128	119
Philology; epigraphy	262	384
Photographs	36	86
Physiology	155	323
Public health	278	208
Religion	704	580
Sports and games	292	212
Travels; voyages	428	561
Fort St. George Gazette (other than current issues)	688	938
Vernacular languages	104	96

Manuscript slips for a new edition of the library catalogue were finished to letter Z (authors' names), and the slips of a number of the subject indexes were completed.

Special facilities for ready access to books were given to the officers engaged in the preparation of the new Gazetteer.

The Government approved of a proposal of the council of the Victoria Technical Institute to house the books of the institute in the Connemara Library. The library of technical books and periodicals, acquired out of a donation of Rs. 20,000 given specially for the purpose by the late Rai Bahadur Arcot Dhanakoti Mudaliyar, will be a very valuable addition to the public library, for the reception of which there will be plenty of space available when the library of the Literary Society has been removed to its new home. The periodicals were, as received, placed on the library table.

13. VALUABLE STOCK.—The necessary inventory was maintained and duly checked.

APPENDIX A.

DONATIONS, 1902-1903.

Anantapur, District Forest Officer—
Timber specimens of *Ficus bengalensis* and *Acacia arabica*.
Timber and bark of *Hymenodictyon excelsum*.

Balfour, Mr. H.—
Silver ex-voto emblems from Antwerp, Belgium.

Barter, Mr. T. R.—
Rhinoceros beetle (*Oryctes rhinoceros*).

Bellary, Collector—
Coins of the Vijayanagar and Moghul Kings.
Copper plate grants and cadjan books.

Bower, Mr. E. H. M.—
Snake (*Enhydrina valakadien*).

Brown, Mr. M.—
Monkey (*Macacus rhesus*) alive.

Carr, Mr. R. C. C.—
Lingams, Bellary district.

Chingleput, District Forest Officer—
Timber specimens.

Creighton, Mr. C. E.—
Cobra in the act of swallowing a Russell's viper.

Cuddapah, Collector—
Palæolithic implements.
Madras and Calcutta—Arcot rupees and half-rupees of English East India Company.

Cuddapah, District Forest Officer—
Timber specimens and forest products.

Ferguson, Mr. H. S.—
Skins of birds (*Schœnicola platyura*).
Skeletons of *Gazella bennetti* (Indian gazelle) and *Boselaphus tragocamelus* (nilgai or blue bull).
Crustacean (*Palæmon carcinus* Fabr).

Foulkes, Mr. R.—
Rock snake (*Python molurus*) alive.

Franklin, Mr. F. W.—
African mosquito.

Ganjám, District Forest Officer—
Timber specimens, bark, seeds and leaves.
Forest products.

Gass, Mr. H. A.—
Kadir rat-trap.
Sandal tree.

Gray, Mr. C.—
Nest of white-browed fan-tail Fly-catcher (*Rhipidura albifrontata*).

Grey, Mr. T. W.—
Bones (of camel ?) from an old working sunk 450 feet underground at the Hutti mine, Lingsugur, Deccan.

Gopálan, Mr. A.—
Albino squirrel.

Government of India—
Indian war medals.

Haig, Colonel—
Bison mask.

Hamilton, Mr. A. W.—
Wooden witchcraft figure, Calicut.

Harrison, Mr. C. B.—
Snake (*Bungarus cæruleus*) alive.

Hasted, Mr. W. A.—
Civet cat (*Viverricula malaccensis*) alive.

Hasted, Mr. J. E. H.—
Spotted billed ducks. (*Anas pœcilorhyncha*) alive.

Hatchell, Mr. D. G.—
Black Ibis (*Inocotis papillosus*).

Hosten, Rev. H.—
Pottery from cairns, Palamalai, Palni hills.

Hunter, Mr. R.—
Copper Moghul coins dug up at Adóni.

Kistna, District Forest Officer—
Timber and bark of *Mimusops hexandra*.
Leaves, flowers and gum of *Woodfordia floribunda*.

Krishnan, Dewán Bahádur, E. K.—
Large Andaman paroquet (*Palœornis magnirostris*).
Blue-winged paroquet. (*Palœornis columboides*).

Kurnool, District Forest Officer—
Timber specimens, fibre and bark.

Lynn, Mr. V. G.—
Borings from well at Pondicherry.

Macleod, Mr. B.—
Palælithic celts from Cuddapah.

Madura, Collector—
Copper grants.

Madura, District Forest Officer—
Timber of *Ixora parviflora*.
Balsamodendron Berryi gum.

Malabar, District Forest Officer—
Timber of *Cedrela Toona*.

Manantoddy, Assistant Conservator of Forests—
Bark of *Salix tetrasperma*.

Menzies, Mr. R. T.—
Shell conglomerate with Turritella shells, from hill near Punjid, Gódávari district.

Mir Anwarruddin Sahib, Mr.—
Worm (*Bipalium univittatum*).

Mounsey, Mr. C. H.—
Khond woman's bracelet.

Municipal Commission, Madras—
Indian Bear (*Melursus ursinus*).
Cockatoo.
Tapir.

Nellore, District Forest Officer—
Timber of *Soymida febrifuga* and forest products.

Nilgiris, District Forest Officer—
Timber, bark, fruits and flowers of *Michelia nilagirica*.
Timber of Lagerstrœmia parviflora.

North Arcot, Collector—
Copper grants.

North Arcot, District Forest Officer—
Timber specimens and forest products.

North Malabar, District Forest Officer—
Fibre and gum of *Sterculia villosa*.

Paddison, Mr. G. F.—
Savara votive offerings.

Pope, Lieutenant-Colonel T. H.—
Tusser moth (*Antheræa mylitta*).

Rae, Mr. A.—
Stone idol from Vijayanagar.

Ronaldson and Ronaldson, Messrs.—
Samples of aloe (*Agave*) fibre, Bahaman and Mexican sisal hemp.

Royal Asiatic Society (Bombay Branch)—
Gold coin of Stri Pratáp Déva Ráya, king of Vijayanagar found in the Poona district.
Silver coin of the western Saliahs found in the Ahmedabad district.
Gold coin of Stri Pratáp Harihara, Vijayanagar dynasty, found in the Ahmednaggar district.

Salem, Collector—
Copper plate grant in Canarese.
Five copper plates in Nágarí.
Copper plate in Tamil.
Timber of *Alstonia scholaris*.

Salem, District Forest Officer—
Timber specimens.

Sargent, Mr. E. H.—
Felspar from the Hope quarry, Marupur, Nellore district.

Seton-karr, Mr. H. O.—
Palolithic celts from Pundi near Tiruvallúr, Chingleput district.

Sharrock, Rev. J. A.—
Photograph of branching palmyra palm.

Southern Circle, Conservator of Forests—
Models of stem showing Kadir pegs and bamboo for climbing trees, and Kádir rattan ladder for descending cliffs for collecting honey.

Stokes, Mr. H. G.—
Ex voto offerings from the Vaithisvárankoil temple.

Tanjore, Collector.—
Copper grants.

Tanjore, District Forest Officer—
Timber specimens and forest products.
Bark of *Spondias mangifera*.

Tinnevelly, Collector—
Copper plate grants.

Tinnevelly, District Forest Officer—
Timber specimens.

Tirupati, Deputy Tahsildar—
Sacred shoes from Tirupati.

Sottenham, Mr. A.R.L.—
Musical instrument (Pulluvakudam) from Malabar.

Trichinopoly, Collector—
Copper plate grants.

United Provinces Government—
Gold mohur of Álamgir.
Silver Moghul coins (Sháh Jahán, Agra mint).
Silver Moghul coins.
Two coins from the Lucknow district.
Silver coins discovered in the Mainpuri district and Benares district.

Venkata Row, Mr. P. N.—
Cobra (*Naia tripudians*).

Vizagapatam, District Forest Officer—
Forest products.

Walker, Mr. J. L.—
Portrait of Sir Thomas Hislop.

APPENDIX B.

CLASSIFIED list of expenditure of the Government Museum during the year 1902–1903.

	Actuals, 1902-1903.	Revised estimate, 1902-1903.
	RS.	RS.
Salaries—		
Superintendent	9,600	9,600
Exchange compensation allowance	600	600
Local allowance	2,400	2,400
Total ..	12,600	12,600

APPENDIX B—*cont.*

Classified list of expenditure of the Government Museum during the year 1902-1903—*cont.*

	Actuals, 1902-1903.	Revised estimate, 1902-1903.
	Rs.	Rs.
Permanent establishment, Government Museum—		
Herbarium keeper, first assistant, second assistant, senior, second and third taxidermists, artist, writer, assistant writer, fifteen hamāls, six gallery attendants, superintendent's peon, door-keeper, chickledar and two peons —35 persons	6,246	6,341
Permanent non-pensionable establishment, Government Museum—		
Three gardeners, three sweepers, five watchmen, water-pandal Brahmin, punkah-puller and chokra—14 persons	967	969
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons—6 persons.	2,636	2,651
Permanent non-pensionable establishment, Connemara Public Library—		
Servant (sweeper)—1 person	48	48
Total Establishment ..	9,897	10,009
Allowance—		
Travelling allowance	2,128	1,200
Supplies and services—		
Cost of specimens purchased on tour	1,096	900
Objects of interest and coins purchased at head-quarters.	755	700
Fittings, furniture, etc., for the collections	2,350	2,400
Cost of books and publications	843	900
Library	1,843	2,000
Lithographic plates	267	500
Ammunitions	15	15
Charges for feeding live animals	235	275
Expenses—		
Reading coins	3	10
Measurement	37	50
Total Supplies and services ..	7,444	7,750
Contingencies—		
Purchase of furniture	34	97
Tour charges	369	285
Landing, shipping and freight charges	68	20
Repairs to furniture	97	100
Cleaning charges	65	95
Postage do.	193	300
Telephone do.	200	200
Telegraph do.	30	20
Rents, rates and taxes	3,843	3,843
Office expenses including such articles as gum-pots, rat-traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vinegar, water-pots, ropes and match-boxes	606	621
Miscellaneous	48	400
Delhi charges	3,276	..
Total Contingencies ..	8,829	5,981
Grand Total ..	40,898	37,540

ORDER—No. 333, Educational, dated 11th July 1903.

The Governor in Council has perused with great interest Mr. Thurston's report of the institutions under his charge. The management of them continued to be highly efficient, and it appears that valuable researches of the ethnographic class were conducted.

2. The number of visitors to the museum buildings was slightly less than in the previous year; that of readers at the Connemara Public Library showed a further increase.

3. The Government would have been glad to know whether the marine dredging off the littoral of Madras mentioned in the previous report was continued, and if so with what result.

4. The thanks of Government are due to Mrs. Bishop and others who rendered help to the Superintendent or presented donations.

(True Extract.)

A. G. CARDEW,
Ag. Secretary to Government.

MADRAS: PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS.

REPORT ON THE ADMINISTRATION

OF THE

GOVERNMENT MUSEUM AND CONNEMARA PUBLIC LIBRARY

FOR THE YEAR

1903-1904.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

Not for sale.

BOMBAY BRANCH

OF THE

Royal Asiatic Society.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

ROYAL ASIATIC SOCIETY BOMBAY BRANCH

READ—the following paper :—

From J. R. HENDERSON, Esq., M.B., F.L.S., Officiating Superintendent, Government Museum, Madras, to the Secretary to Government, Educational Department, dated Pantheon Road, Egmore, Madras, 7th July 1904, No. 28-B.

I have the honour to forward, for submission to His Excellency the Governor in Council, the report on the working of the Government Museum and Connemara Public Library during 1903–1904, and to request that I may be supplied with 160 copies for distribution to other museums, etc.

ENCLOSURE.

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM FOR THE YEAR 1903–1904.

I had charge of the museum during the last two months of the year only. This report is, therefore, largely compiled from the notes given to me by Mr. Thurston.

2. VISITORS.—The total numbers of visitors to the museum old and new buildings were 413,663 and 457,464 against 375, 725 and 393, 419 in 1902–1903.

The largest number of visitors on a single day was 60,480 to the old and 61,026 to the new building at the feast of Pongal. The numbers of visitors on Sundays were 70,063 to the old and 71,653 to the new building. The number of gosha female visitors, on the monthly Saturdays set apart for them, was 9,237.

The museum was visited during the year by Her Highness the Maharani of Rewa (Maharaja Kumarika of Vizianagram) and by the Thakurain of Madhogarh, also by His Excellency the Governor of Madras accompanied by His Highness the Raja of Cochin, and by His Highness the Maharaja of Mysore.

3. THEATRE.—The theatre was used on ten occasions as follows :—

Amateur Dramatic Society	7
Madras Collegiate School	2
Madras Musical Association	1

4. BUILDINGS AND ESTABLISHMENT.—The construction of the annexe to the pre-historic room was commenced towards the end of the year. The Government having approved of the plans and estimates for the proposed Victoria Memorial building, to be erected by the Victoria Technical Institute Council in the museum grounds, sanctioned a contribution of Rs. 50,000 towards the cost.

Mr. Thurston, the permanent Superintendent, proceeded on leave on 30th January 1904. The herbarium-keeper, Mr. K. Rangachari, was deputed to act as Superintendent of Ethnography in addition to his duties as Lecturer on Botany at the Presidency College. Mr. S. Sundararaman, B.A., was appointed acting herbarium-keeper. The posts of draftsman and third taxidermist were abolished, some of the subordinates were regraded with increase of pay, and the appointment of a watchman to be in special charge of the live animals was sanctioned (*vide* G.O., No. 57, Financial, dated 19th January 1904).

5. Madras Industrial and Arts Exhibition.—Mr. Thurston acted as President of the Judging Committee, and the Personal Assistant and the Herbarium-keeper also assisted the Committee in arranging the exhibits. The following articles were purchased at the exhibition :—

A collection of arms (spears, daggers, etc.).
Green glazed pottery vases and other receptacles from Karigeri, North Arcot district.
A magnificent carved ivory tankard made at the Trivandrum School of Arts.
A collection of Bidri ware.
Wax-printed cloths from Kumbakónam.
Woven silk cloth from the Cuddapah district.
Mats from Pattamadai, Tinnevelly district.

6. Anthropology.—Mr. Thurston reports as follows :—

Bulletin, Vol. V, No. 1, dealing with the vision of the Urális and Sholagas; more marriage customs in Southern India; hook-swinging; and Pulayans; was issued. For the article on visual acuity, etc., I was indebted to Dr. W. H. R. Rivers, who examined the Urális and Sholagas when in camp with me at Dimbhum in the Coimbatore district. As human hook-swinging is forbidden, a pseudo-ceremony has been substituted for it, and was performed for my special edification at Channapatna in the Mysore province. To a long beam a wooden figure of Sidi Vîranna, carrying in his hands a sword and shield, and dressed up in a gaudy turban and silk-bordered cloth, was secured by means of a rope made of human hair, and tied to a hook in the middle of his back. The beam was then hoisted on high, and Sidi Vîranna rotated round and round, accompanied by the Goddess Mâriamma, and Holeya musicians playing weird music with pipe and drum. Sometimes a cradle is tied to the beam, and children are hoisted on it. The Pulayans, who live in the jungles at the base of the Tinnevelly mountains, are interesting as an example of the primitive tribes of Southern India, short of stature and dolichocephalic, in some of whom the archaic type of platyrhine nose persists. Matrimonial complications sometimes occur among them owing to the absence of a girl of suitable age for a young man, and I came across two brothers who had, for this reason, resorted to the adelphous form of polyandry. The Pulayans absolutely refuse to touch leather, and one of them declined to carry my camera-box because he detected that it had a leather strap. Savari (a corruption of Xavier) is a common name among them. There is a temple called Savarimalayam (Xavier of the hills) on the Travancore frontier, whereat the festival takes place at the same time as the festival in honour of St. Xavier among Roman Catholics.

A prolonged tour was made in the Mysore province in connection with the ethnographic survey, with the primary object of continuing my researches into the character of the Canarese cranium (*vide* Museum Bulletin, IV, 2, 1901). The work was carried out under conditions of considerable difficulty, caused by the terror of the natives, who mistook me for a recruiting sergeant bent on seizing them for employment in South Africa or for the Somali war, and fled before my approach from town to town. The little spot, which I am in the habit of making with Aspinall's paint to indicate the position of the fronto-nasal suture when measuring the nose, was supposed to possess blistering properties, and to turn into a number on the forehead, which would serve as a means of identification. The untimely death of a Korava outside a town where I was halting was attributed to my evil eye. Villages were denuded of all save senile men, women and children. The vendors of food-stuffs in one bazaar finding business slack owing to the flight of their customers, raised their prices, and a missionary complained that the price of butter had gone up. My arrival at one important town was coincident with a temple festival, whereat there were not sufficient men left to drag the temple car in procession. The headman of another town, when he came to take leave of me, apologised for the scrubby appearance of his chin as the local barber had fled. One man, who had volunteered to be tested with the tintometer, was suddenly seized with fear, and, throwing his body-cloth at my feet, ran away and was no more seen. An elderly municipal peon wept bitterly when undergoing the process of measurement. Such are a few examples of the results which attend the progress of the Government anthropologist. Despite the opposition I was, with the assistance of

the Comptroller of the Mysore palace, amildars and others, enabled to record the measurements of nearly a thousand subjects belonging to nineteen different classes, and to secure a considerable addition to our knowledge of the South Indian cranium. A detailed analysis of the results will eventually be published elsewhere, and it will suffice, for the purpose of the present report, to place on record the following comparative data, which show the difference of type of cranium in the Canarese and Marátha area, and in the Southern (Tamil and Malayalam) districts of the Madras Presidency.

CEPHALIC INDEX.

Tamil and Malayalam area.		Canarese and Marátha area.	
Tiyan	72·6	Bestha	77·1
Kádir	72·9	Kuruba	77·3
Tamil Pariah	73·6	Bédar	77·3
Vellála	74·1	Gániga	77·5
Palli	74·2	Mádhva Bráhman	78
Agamudaiyan	74·2	Agasa	78·5
Tamil Malaiáli	74·3	Padma Sálé	78·7
Pattar Bráhman	74·5	Panchála	79
Uráli	74·6	Holeya	79·1
Kammálan	75	Rangári	79·8
Mukkuvan	75·1	Hebbar Bráhman	80·1
Pallan	75·9	Mandya Bráhman	80·2
Idaiyan	76	Vakkaliga	81·7
Smarta Bráhman	76·5	Suka Sálé	81·8

Among the additions to the ethnological section, the following may be noted :—

Koracha arrow used for shooting fish in the river near Manantoddy. The principle is the same as in the dart used with a blowpipe in Malábar for shooting fish ; as in the apparatus used for catching sharks off the west coast ; and as in the Greenlander's spear.

Earth eaten by coolies on an estate in the Wynâd. Several deaths of women, with dropsical symptoms, occurred as the result of eating a singularly luscious stratum of clay, which they came across. The habit is contracted in secret, and, once acquired, cannot be abandoned.

Wooden human figurines made at Tirupati. If there be a grown up boy or girl in a family who remains unmarried, the parents celebrate the marriage ceremony between a pair of the dolls, in the belief that the marriage of their children will speedily follow. They dress up the dolls with clothes and ornaments, and go through the details of a real marriage. Some there are who have spent as much money on a doll's marriage as on a marriage in real life.

Large musical horn (kombu). Blown by a Holeya in Mysore villages to announce the approach of the Amildar on village inspections and on other occasions.

Horn knuckle-dusters with sharp points used by Jettis (professional wrestlers and gymnasts) in Mysore.

Hat made of the liber (inner bark) of the sacking-tree (*Antiaris toxicaria*), and worn by the Arayans of Travancore.

Bashingams (chaplets) made from the pith of *Æschynomene aspera*, and worn by bride and bridegroom of the Vakkaliga, Kuruba, Gániga, and other classes, on the forehead.

Whistles, silver and copper, tied round the neck of some Holeyas, Vakkaligas, Besthas, etc. The whistle is tied by means of a chain of sheep's wool by a Bhairágí in the name of the god Bhaira at Chunchingiri in Mysore, usually in fulfilment of a vow by the parents. At the ceremony the Bhairágí bores a hole in the right ear-lobe of the celebrant, and from the wound two drops of blood fall to the ground. He is then bathed, and the tying ceremony is performed. The man who wears the whistle attains the rank of priest in his caste, and is entitled to receive meals and alms on festive occasions. He blows his whistle, which emits a feeble squeak, before partaking of food and performing his daily worship.

The museum was indebted to Mr. H. W. Seton-Karr for an exceedingly interesting series of neolithic implements from Banda, United Provinces.

Iron-cage gallows from Beluguppa in the Kalyandrug taluk of the Anantapur district. The gallows are believed by natives to have been erected by Sir Thomas Munro, and a stone placed near them, records in Telugu that two jemadars were hung by order of the Foujdari Court in 1837 for killing a man by throwing a noose.

Model of a Chenchu hut, and telescopic spears used by the Chenchus for spearing birds.

Bows and arrows used by the Koyas.

Garment made from the leaves of a sedge (tanda), worn by the Tanda Pulayan females of Travancore. A ceremony, called the tanda marriage, is performed when a girl first dons the costume.

Head-dress, worn by Koyas at their dances, decorated with buffalo horns, cowry shells, peacock feathers, and a mirror.

7. ART.—The following paintings by native artists, purchased at the Fine Arts Exhibition, were added to the loan collection:—

On the banks of the Ganges, by J. P. Gangooly.

A King and Queen of ancient India, by M. V. Dhurandhar.

Two studies, by M. V. Dhurandhar.

The following were the chief additions made to the Art and Industrial section of the museum:—

Model temple car, with flying cherubs and winged horses, carved in red sanders wood (*Pterocarpus santalinus*) at Tirupati.

Mixed-metal bowl, engraved on the outside and inside with texts from the Qurán. Such bowls are taken or sent to Mecca, placed at the head of the tomb of the Prophet, and blessed. They are then much valued articles, and used in cases of sickness for the administration of medicine and nourishment.

Wood-carvings by an old Muhammadan at Udayagiri, Nellore district. "The most interesting point," the Revd. F. W. Stait writes, "in the history of this little industry is that it is all the outcome of personal talent and application, for not only did the man carry on the work and design the articles, but he also made his own tools and instruments as the need unfolded itself."

The monograph on Wood-carving in Southern India, referred to in the last report, which deals largely with the sandal-wood carving of the Gudigars of Mysore, to whom a gold medal was awarded at the Delhi Exhibition, was issued.

8. ARCHÆOLOGY.—By a notification of Government, the Superintendent of the Archæological Survey, and the Government Epigraphist, were brought into more intimate relation with the museum than heretofore by being appointed Honorary Assistant Superintendents.

Pottery, with Ampullaria and portions of Nautilus shells, and ornaments and pierced beads made from the chank (*Turbinella rapa*), were received from a mound near Gudivada, Kistna district.

Two stone pillars, bearing inscriptions, which must have been originally set up in a Jaina temple, were received from Dharmapuri in the Salem district. An account of these pillars is given by Dr. E. Hultzsch, Government Epigraphist, in his Annual Report, 1900–1901.

Photo-enlargements of pictures and photographs preserved in the houses of Jains at Hassan, Mysore province, and illustrating the Jain religion were exhibited.

Bead and shell ornaments, and iron articles found during excavation at Manapâd, Tinnevelly, by Mr. L. Vibert, were exhibited.

The following stone articles from excavations in the Tinnevelly district, were forwarded to the museum by the Archæological Survey (*vide* Annual Report, Archæological Survey, 1902-1903):—

A headless, but finely sculptured stone image of Subramanyaswâmi, and some sculptured slabs, from Kurumbur; a sandal-wood grinding slab from Sugandalê; a stone with Tamil inscription from Adichanallur. From the same source was also received a Jain image from Vijayanagar (Hampi), in the Bellary district.

The following found at Hemavati, near Madakasira in the Anantapur district, were received from the Government Epigraphist:—

A black granite pillar set up in front of the Henjarappa temple; a slab set up in front of the Anjaneya temple at Henjeru (half a mile from Hemavati); a pillar from the field of Hampanna.

Four copper-plate grants were received from the Treasury Deputy Collector of South Arcot for deposit in the museum.

The magnificent collection of bronzes, iron weapons and implements, gold ornaments, pottery, and human bones, excavated under the direction of Mr. A. Rea, Superintendent of the Archæological Survey, at various "prehistoric" or early historic (protohistoric) sites in the Tinnevelly district, was consigned to the museum for arrangement. The collection is so extensive that its final arrangement will be impossible until the annexe to the existing prehistoric gallery, now under construction, has been built. Among the human bones, were several skulls in a sufficient state of completeness to permit of the more important cranial measurements being determined hereafter. For the moment it must suffice to state that they are all conspicuously dolichocephalic. It has been decided (G.O., No. 814, Public, dated 22nd August 1902), that duplicates will eventually be made available for museums in other parts of India, but that no distribution shall be made until a thoroughly representative collection has been set apart for the Madras museum.

9. NUMISMATICS.—The following gold Roman coins (solidi) were acquired from a find of about fifty, by a rayat, in a pot three feet below the surface, at Puthenkavoo, Travancore.

Theodosius—

Obv.—Head of Emperor diademed. D. N. THEODOSIVS P. F. AVG.

Rev.—Two figures, each holding a scroll and cross. SALVS REIPVBLICÆ. In exergue CONOB.

Leo—

Obv.—Head of Emperor diademed. D. N. LEO PERPET. AVG.

Rev.—Victory walking *l.* holding cross. Star in field. VICTORIA AVGGA. In exergue CONOB.

Zeno—

Obv.—Head of emperor diademed. D. N. ZENO PERP. AVG.

Rev.—Victory walking *l.* holding cross. Star in field. VICTORIA AVGGH. In exergue CONOB.

Anastasius—

Obv.—Head of emperor diademed. D. N. ANASTASIVS P. P. AVG.

Rev.—Victory walking *l.* holding cross. Star in field. VICTORIA AVGGA. In exergue CONOB.

Marcianus—

Obv.—Head of emperor diademed. D. N. MARCIANVS P. F. AVG.

Rev.—Victory walking *l.* holding cross. Star in field. VICTORIA AVGGI. In exergue CONOB.

All the coins of Marcianus are said (Stevenson, Dict. Roman Coins) to be of the highest rarity.

Justinus—

Obv.—Head of emperor diademed. D. N. JVSTINVS P. P. AVG.

Rev.—Victory walking *l.* holding cross. Star in field. VICTORIA AVGGθ. In exergue CONOB.

The above coins of the later emperors constitute a very valuable addition to the museum collection of Roman coins found in Southern India, which previously commencing with Augustus, terminated with Caracalla.

The following coins were also received during the year :—

Benáres rupees of the English East India Company, of thick Moghul type, with dates from 1213 to 1233, and fixed regnal year 26. Probably, as Dr. S. Lane-Poole points out, the failure to alter the regnal year is an indication of European negligence.

Single and double puthans of Cochin, struck in 1790—1791, 1856—1858, and 1897–1898.

Hook-money or toowela (= long bit) from Hassa in East Arabia, which is of interest for comparison with the Ceylon larin.

A series of Oudh rupees with dates from 1251 to 1271.

A small find of Moghul rupees was received from the Vizagapatam district, consisting of the following :—

Akbar; Ahmadabad mint, year 995.
Akbar; year 993.
Shâh Jahân; Surat mint, year 1053.
Aurangzîb; Tatta mint, regnal year 9.
" Golkonda mint, regnal year 24.
" Zafarabad mint, regnal year 24.

A Cochin chakram board of "rose wood," capable of counting on one side 500 double puthans, and on the other 1,000 single puthans, was presented to the museum by the Hon'ble Mr. H. Bradley.

The collections of coins of the Sétupatis and the Vijayanagar dynasty, and the fine collection of Ráma Tankas, were arranged in the coin cabinets.

10. ECONOMIC AND BOTANICAL.—The section in which the economic products are grouped according to their uses has been considerably enlarged during the year by additions to the already existing collections. Several groups of products which had not been previously exhibited have been added to this section, notably a collection of about sixty South Indian vegetable oils, with the seeds, etc., from which they are derived, exhibited alongside.

The series intended to illustrate the timber resources of the Presidency is in process of arrangement, and a number of wood sections have already been prepared for exhibition; the timber material still available, is receiving the special attention of the herbarium-keeper.

At the Industrial and Arts Exhibition, a series of samples of chrome-tanned leather, and an extensive collection of fibres and rubbers were acquired.

The museum was indebted to the Cochin Darbar for two splendid transverse sections of teak (*Tectona grandis*) and "rosewood" (*Dalbergia latifolia*) from the Cochin forests. To the Mysore Darbar the Museum is also indebted for a series of timber blocks illustrating the various kinds of wood available in the Mysore province.

11. MINERAL GALLERY.—Among the additions may be noted—

Green and blue fibrous serpentine (picrolite) from the magnesite veins, Chalk hills, Salem.

Micaceous schist from Melkote in the Mysore province, decomposed into a fine white clay. Said to have been discovered by Emberumánár or Rámanúja, and used by Vaishnava Bráhmans for making sectarian marks on the forehead.

Transparent calcite, exhibiting double refraction, from Hyderabad.

Cubical crystals of iron pyrites scattered through rock, used for building purposes at Nandyal, Kurnool district.

Stalagmites from the Periyár dam, Travancore. Formed by water percolating through the dam, and dissolving the lime from the mortar which is a constituent of the concrete.

Graphite (plumbago) from the Polavaram estate, Gódávari district.

Specimen from the bed of a hill stream running past Golapudi near Polavaram, Gódávari district, concerning which Mr. T. H. Holland, Director, Geological Survey of India, writes as follows : "It is, as far as our own experience goes, quite unique. The main mass of the rock is a granular mixture of augite, plagioclase and hornblende. The black film on one face with large, lath-shaped white crystals, appears to be a contemporaneous vein, that is, a fissure filled in before the complete cooling of the rock by the residual magma, and of about the same bulk composition as the rock itself. The black mineral of the film is the hornblende of the main rock, with which it is in continuity, whilst the white crystals are mainly of scapolite with a shell of plagioclase ; and, as scapolite chemically differs from plagioclase mainly in the introduction of chlorine, I presume the alteration is due to the action of chlorine vapours passing along the fissure during the cooling of the rock mass."

12. Natural History.—To the British Museum, Natural History Department, the museum is indebted for the return of a named collection of Coleoptera, Hemiptera and Orthoptera, which was made some years ago at Bangalore. A similar collection from the City of Madras is in course of preparation.

Three photographic enlargements of Russell's viper (*Vipera Russellii*), one of which shows the fangs of the snake, were prepared from negatives by Captain F. D. S. Fayrer, I.M.S. They are exhibited beside a living specimen of the viper.

A specimen of the recently described *Mus famulus*, a mouse hitherto only found in the neighbourhood of Coonoor, Nilgiris, was presented by Mr. C. Gray, who originally added the species to the Indian fauna.

The following were the chief additions to the bird collection :—

Crested hawk-eagle (*Spizaëtus cirrhatus*).

Broad-tailed grass-warbler (*Shoenicola platyura*).

Albino variety of the grey partridge (*Francolinus pondicerianus*).

A specimen of the rare yellow-throated bulbul (*Pycnonotus xantholaemus*), which is apparently confined to the Eastern Ghâts in the neighbourhood of Nellore, was presented by Mr. D. G. Hatchell.

Bengal red-whiskered bulbul (*Otocompsa emeria*) from the local market.

The skeleton of a spotted-billed pelican (*Pelecanus philippensis*) was added to the collection of bird skeletons.

A collection of jumping spiders, obtained in the neighbourhood of Madras, was forwarded to Mr. George W. Peckham, Milwaukee.

The collection of live animals continued to be attractive, and the following were added during the year :—

Albino rats (*Mus rattus*).

Orange-breasted green pigeons (*Osmotreron bicincta*).

A young marine turtle (*Chelone mydas*).

A snake (*Hydrophobus nympha*).

13. Connemara Public Library.—The total number of readers during the year was 16,055 against 14,829 in 1902–1903 :—

Largest number of readers	in a day	.. ..	232
Smallest	„ in „	.. ..	10
Largest	„ on Sunday	.. ..	217
Smallest	„ on „	.. ..	29

The total number of volumes given out to readers was 19,635 against 18,717 in 1902–1903.

The number of standard works added to the library was 404, of which 301 were acquired by purchase and 100 presented.

As a general indication of the class of literature resorted to by readers, I append a list of books issued during the last two years under each subject catalogue head—

	1902-1903.	1903-1904.
Anatomy; biology; natural history; zoology	856	1,315
Anthropology; folklore	493	694
Archæology; architecture	487	384
Arts; industries	209	574
Atlases; maps	57	76
Belles lettres	1,555	1,676
Botany; arboriculture; horticulture	78	291
Chemistry; agriculture	183	348
Classics	216	311
Dictionaries; encyclopædias; gazetteers	4,345	4,247
Economic products	81	82
Education; ethics; logic; metaphysics; philosophy; political economy	1,956	2,599
Exhibitions	73	119
Forestry; timbers	12	48
Geography; physical geography; physiography	59	80
Geology; palæontology	73	146
History	2,306	2,050
Jurisprudence	758	671
Medicine; surgery; pathology	428	631
Microscopy	..	58
Mineralogy; metallurgy; petrology	55	90
Natural philosophy	388	515
Numismatics; medals	119	118
Philology; epigraphy	384	216
Photographs	86	50
Physiology	323	451
Public health	208	307
Religion	580	810
Sports and games	212	233
Travels; voyages	561	385
Fort St. George Gazette (other than current issues)	938	974
Vernacular languages	96	137

The manuscript slips of the subject indexes for a new edition of the library catalogue were completed.

A proposal was received by Government from the University of Madras, that a legacy bequeathed to it by Mr. William Griffith should be utilised by the establishment and organisation of a library in connection with the University, and that it should be associated with the management of the Connemara Library, in view to making this a university as well as a public library. The Government agreed with the proposal, provided that the books, while remaining the property of the University, are available to the general readers of the Connemara Library. No definite action has, however, been taken, pending the passing of the Universities' Bill.

14. Valuable Stock.—The necessary inventory was maintained and duly checked.

APPENDIX A.

DONATIONS, 1903-1904.

Anantapur, Collector—
Cage gallows.

Anantapur, District Forest Officer—
Leaves of *Hymenodictyon excelsum.*
,, *Ficus retusa.*

Anderson, Mr. M.—
Indian scaly ant-eater (*Manis pentadactyla*).

Barber, Mr. C.—
Malabar spiny mouse (*Platacanthomys lasiurus*).

Barlow Pool, Mr. B. H.—
Photograph of cage gallows, Anantapur district.

Bellary, District Forest Officer—
Timber of *Poinciana elata.*

Bradley, Hon'ble Mr. H.—
Cochin chakram board.

Central Circle, Conservator of Forests—
Fibre and bark of *Hardwickia binata.*

Chatterton, Mr. A.—
Stalagmites from Periyár dam, Travancore.

Chingleput, District Forest Officer—
Timber specimens.
Leaves of *Terminalia chebula.*
Bark of *Soymida febrifuga.*
Leaves and fruit of *Terminalia belerica.*

Chingleput, Sub-Collector—
Nandi from Sendamangalam, Conjeeveram taluk.

Cochin, Dewan—
Transverse section of teak timber (*Tectona grandis*) 20 feet 2 inches in girth.
Transverse section of rosewood (*Dalbergia latifolia*) 20 feet in girth.

Cochin, Dewan's Secretary—
Two single and two double puthans each of the coinages of 1790-91, 1856-58, and 1897-98.

Cuddapah, District Forest Officer—
Timber of *Areca catechu.*
Timber of *Pterocarpus santalinus.*
Timber of *Bassia latifolia.*

Ethiraja Mudaliyar, Mr. P.—
Live crocodile.

Fawcett, Mr. F.—
Koracha arrow.

French Rocks, Mysore, Deputy Amildar—
Clay from Melkote.

Ganjám, District Forest Officer—
Timber specimens.
Roots of *Gardenia turgida.*

Ghansham Singh, Mr. T.—
Dead pigeon.

Gillespie, Mr. J. T.—
Young toddy cats (*Paradoxurus niger*).

Gódávari, District Forest Officer—
Timber, bark and leaves of *Diospyros melanoxylon.*
Timber, fibre and leaves of *Cordia myxa.*
Bark, leaves and fruit of *Diospyros embryopteris.*
Timber of *Diospyros chloroxylon.*

Government Epigraphist—
Stone pillar from the Mallikarjuna temple at Dharmapuri, Salem district.
Black granite pillar from the Henjarappa temple.
Slab from the Anjaneya temple at Henjeru ½ mile from Hemavati.
Inscribed stone slab from the field of Hampanna.

Gray, Mr. C.—
Mouse (*Mus famulus*).

Hatchell, Mr. D. G.—
Crested hawk-eagle (*Spizaëtus cirrhatus*).

Henderson, Mr. J. R.—
Ceylon copper coins. Dutch and English, local series.

Hooper, Mr. E. D.—
Seeds of *Ficus elastica*.

Houghton, Mr. T. H. E.—
Trees. Dwarf-palm, *Ficus Krishna* and another species of *Ficus*.

Industrial and Arts Exhibition Committee, Secretary, Gódávari—
Graphite; model of a Chenchu hut; Koya arrow and bows; Koya dancing head-dress; Chenchu bird-piercing spear; country shoes (2 pairs).

Industrial and Arts Exhibition Committee, Madras—
Two kinds of drums.
Baka (trumpet).
Pair of brass kommulu (trumpets).
Pair of albuja (fluté and accessory).
Kinnara (musical instrument).
Koya waist cloth.
Miniature fish-net.
"Ethu-vala" (net).
"Konti-vala" (net).
Bundle of coloured plantain fibres.
Bundles of white fibres.
Bundle of hill grass.
Bundle of thin reeds.
Miniature boat.

Kistna, Collector—
Pottery and ornaments from a mound near Gudiváda.

Kistna, District Forest Officer—
Timber of *Bruguiera gymnorhiza*.
Weed (*Ærua lanata*).

Krishna Menon, Mr. M.—
Bow and arrow.
Umbrellas.

Kurnool, District Forest Officer—
Timber, bark, fibre, fruit and flower of *Careya arborea*.
Fruit of *Miliusa velutina*.
Timber of *Murraya Kœnigii*.
Fruit of *Gyrocarpus Jacquini*.
Timber of *Polyalthia cerasoides*.

Laljee Waljee, Khán Bahádur—
Coal-shale and copper ore.

Lewis, Mr. V.—
Snakes (*Tropidonotus stolatus*).

Lockyer, Mr. J. E.—
Toowela (Hook-money) from Hassa, East Arabia.

Mackenzie, Mr. G. T.—
Arrows used by Ulladars with cross-bow.

Madura, District Forest Officer—
Forest products.

Malabar, District Magistrate—
Amulets.

Municipal Commission, Madras—
Crocodile (*Crocodilus palustris*).
Orang-utan (*Simia satyrus*).
Black panther (*Felis pardus*).
Crested or falcated teal (*Eunetta falcata*).
Purple-capped Lory.
Parakeet.
Pelican (*Pelecanus Philippensis*).

Mysore Government—
Timber specimens.

Fibres.
Bees' wax; kusame oil; dye stuff (Lichen); huchellu; areca-nuts; and Indian maize.

Nellore, District Forest Officer—
Timber specimens.

North Arcot, District Forest Officer—
Forest products.

North Coimbatore, District Forest Officer—
Timber specimens and forest products.
Leaves, gum, bark and root of *Garuga pinnata*.
Fruit of *Gardenia latifolia*.

North Malabar, District Forest Officer—
Timber specimens and forest products.

North Salem, District Forest Officer—
Timber of *Bassia latifolia*.

Parry & Co., Messrs., Madras—
Calcite (transparent).

Pogson, Mr. W. N.—
Iron pyrites in rock from Nandyal, Kurnool district.

Porritt, Mrs. H.—
Whip snake (*Dryophis mycterizans*)—

Proudlock, Mr. R. L.—
Rubbers.—Para rubber, moulded Para rubber, Para rubber tree seeds, Ceara scrap rubber, Ceara moulded rubber, Ceara moulded rubber cakes, Cryptostegia rubber.

Fibres.—Plantain fibre extractor. Samples of plantain fibre, *Girardinia* fibre and twine made from it, fibres of *Lusiosiphon*, *Debregeasia*, *Cryptostegia* and *Agave vivipara*. Rope made of plantain fibre.

Oils.—*Gaultheria* oil, sweet flag oil, lemon grass oil, *Andropogon* oil, *Litsoea* oil, wild cinnamon oil.
Gums of Mahogany, *Pompelo* and *Mylitta*.
Latex of *Castilloa elastica*.
Rubber of *Landolphia florida*.

Ramunni Menon, Mr. K.—
Marine chelonian (*Chelone mydas*, young).

Rungachary, Mr. T. M.—
Silver coin (Tiflis) with countermark of the Dutch East India Company.

Royal Asiatic Society (Bombay Branch)—
Coins. *Gold*.—Padmatanka (Southern India) found in the Nasik district.
Mamluk sultans—found in the Ahmadabad district.

Silver.—Muhammad (Moghul Emperor). Farruk Siyar. Aurangzib (found in the Panch Mahals district).

Copper—
Ahmad Shah I (Guzerat) found in the Nasik district.

Rutherford, Mr. E. W.—
Stick insect.

Salem, Collector—
Stone pillar from the Mallikarjuna temple at Dharmapuri.

Seton-Karr, Mr. H. W.—
Prehistoric implements from Banda.

South Arcot, Treasury Deputy Collector—
Copper-plate grants.

South Canara, Collector—
Ten coins of the Vijayanagar dynasty.

South Canara, District Forest Officer—
Timber specimens and forest products.
Resin of *Macaranga indica*.

Southern Circle, Conservator of Forests—
Wood, leaf and pods of *Entada scandens*.

South Malabar, District For st Officer—
Timber specimens.

South Salem, District Forest Officer—
Timber of *Atalantia missionis.*
„ of *Erithrina indica.*
„ of *Hardwickia binata.*
„ of *Pterocarpus marsupium.*
„ *Bombax malabaricum.*

Strange, Mr. A. B.—
Teeth, and tail with serrated spine, of skate.

Sundaram Mudali, Mr. A.—
Abnormal fowl's egg.

Superintendent, Archæological Survey, Madras—
Stone image of Subrahmanyaswami and sculptured slabs unearthed from a temple and well in Kurumbur.
Sandalwood grinding slab from Sugandalé.
Inscribed stone from Adichanallur.
Jain image from Véllúr.

Tanjore Collector—
Cannons and cannon balls.

Trichinopoly, District Forest Officer—
Forest products and timber specimens.
Timber of *Memecylon edule.*

Trivandrum, School of Arts—
Plantain fibre cloth.

Turner, Mr. G.—
Serpentine (fibrous, compact and strong, green, yellowish and pale).

United Provinces, Government—
Nineteen rupees—Benares East India Company (Moghul type).
Three silver coins.
Six copper coins.
Three coins discovered in the Kheri district and two in the Jaunpur district.
Five Moghul coins of Sháh Alam. Ahmadnagar and Farrukhabad mints.
Eight coins (seven Oudh rupees, one Benares rupee).

Vadagarai, Zemindar of—
Indian scaly ant-eater (*Manis pentadactyla*).

Vas, Mr. A.—
Yam and cocoanuts.

Vizagapatam, Agent to the Governor—
Moghul coin of Akbar.

Vizagapatam, District Forest Officer—
Timber of *Stereospermum chelonoides.*
Fruit of *Maba buxifolia.*

Ware, Mr. S. D.—
Turritella limestone.
Sandstone.
Rock specimen (mixture of augite, plagioclase and hornblende).

APPENDIX B.

CLASSIFIED list of expenditure of the Government Museum during the year 1903-1904.

	Actuals, 1903-1904.	Revised estimate, 1903-1904.
	RS.	RS.
Salaries—		
Superintendent	9,058	9,600
Exchange compensation allowance	550	600
Local allowance	2,194	2,400
Total	11,802	12,600
Permanent establishment, Government Museum—		
Herbarium keeper, first assistant, second assistant, senior second and third taxidermists, artist, writer, assistant writer, and twenty six peons—35 persons	5,524	6,171
Permanent non-pensionable establishment, Government Museum—		
Three gardeners, three sweepers, five watchmen, water-pandal Brahmin, punkah-puller and chokra—14 persons	946	958
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons—6 persons.	2,636	2,631
Permanent non-pensionable establishment, Connemara Public Library—		
Servant (sweeper)—1 person	48	48
Total Establishment	9,154	9,808
Allowance—		
Travelling allowance	739	1,200
Supplies and services—		
Cost of specimens purchased on tour	618	900
Objects of interest and coins purchased at head-quarters.	1,963	700
Fittings, furniture, etc., for the collections	2,535	2,400
Cost of books and publications	894	900
Library	2,181	2,000
Lithographic plates	612	500
Ammunition	10	15
Charges for feeding live animals	237	275
Expenses—		
Reading coin	5	10
Measurement	6	50
Total Supplies and services	9,061	7,750
Contingencies—		
Purchase of furniture (Europe stores)	238	326
Tour charges	383	285
Landing and shipping charges	43	50
Repairs to furniture	124	100
Cleaning charges	74	95
Postage charges	130	280
Telegraph charges	35	20
Telephone charges	200	200
Rents, rates and taxes	3,843	3,843
Office expenses including such articles as gum-pots, rat-traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vinegar, water-pots, ropes and match-boxes	603	633
Miscellaneous	451	..
Delhi Coronation Durbar charges	1,338	..
Total Contingencies	7,462	5,832
Grand Total	38,218	37,190

ORDER—No. 487, Educational, dated 9th August 1904.

Recorded. The continued and growing popularity of the museum is most gratifying. The Government recognize that this is largely due to the solicitous care with which Mr. Thurston provides facilities for visitors.

2. The thanks of His Excellency the Governor in Council are due to all those who have rendered help to the Superintendent or made donations.

(True Extract.)

H. D. TAYLOR,
Ag. Secretary to Government.

MADRAS: PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper :—

Letter—from E. THURSTON, Esq., Superintendent, Government Museum.
To—the Secretary to Government, Educational Department.
Dated—7th July 1905.
No.—28-C.

I have the honour to forward, for submission to His Excellency the Governor in Council, the report on the working of the Government Museum and Connemara Public Library during 1904–1905, and to request that I may be supplied with 160 copies for distribution to other museums, etc.

ENCLOSURE.

Administration Report of the Madras Government Museum for the year 1904–1905.

I was absent on leave until January 31st, 1905, and am consequently only able to speak from personal experience of the working of the museum during the last two months of the year. To Dr. J. R. Henderson, who officiated for me during my absence, my thanks are due for the loyal manner in which he carried out the work on the lines arranged between us before my departure. His connection with the museum did not, I am glad to say, cease with my return, as he has been gazetted by Government as an Honorary Assistant Superintendent thereof.

2. VISITORS.—The total number of visitors to the old and new buildings were 397,058 and 377,353 against 413,663 and 457,464 in 1903–1904. The largest number of visitors on a single day was 66,258 to the old, and 65,843 to the new building at the feast of Pongal. The numbers of visitors on Sundays were 127,330 to the old, and 126,139 to the new building against 70,063 and 71,653 in 1903–1904. The increase was due to the fact that the Kannu Pongal festival fell on a Sunday. The number of gosha females who visited the museum on the monthly Saturdays set apart for them was 8,762.

The museum was visited during the year by His Excellency the Governor and His Highness the Maharaja of Travancore. At the request of the Court of Wards, Dr. Henderson personally accompanied the young wards at Newington on a series of visits to the museum, in order to interest them therein.

In like manner, the herbarium-keeper gave a demonstration on the museum herbarium to the students of the Agricultural College.

3. LECTURES.—During the Christmas holidays, Dr Henderson delivered a special course of lectures on the study of animals for the benefit of training-school masters, and supplemented the lectures by demonstrations in the museum galleries.

4. BUILDINGS AND ESTABLISHMENT.—The Museum grounds were as usual under the management of the Agri-horticultural Society. A young plant of Ficus Krishna raised from a cutting from the tree in the Calcutta Botanical Gardens, and presented by Mr. Houghton, was planted in the grounds. It is characterised by the production of leaves, each of which has a cup at the proximal end. The cups are associated with the cups from which Krishna partook of butter.

The new annexe to the pre-historic room, the building of which was commenced towards the close of the last official year, was completed.

The Personal Assistant, Mr. V. Govindan, was deputed to visit the Bombay Industrial Exhibition. Mr. S. Sundararaman continued to officiate as herbarium-keeper during the engagement of Mr. K. Rangachari on other duty.

A gallery-attendant was dismissed in connection with the theft, while he was in charge of the economic gallery, of some samples of silk by a visitor, who had been previously convicted of theft, and was well-known to him.

5. THEATRE.—The theatre was used on seven occasions as follows :—

Amateur Dramatic Society	3
Madras Musical Association	1
School of Music	1
Collegiate School	2

6. PUBLICATIONS.—Bulletin V No. 2 containing an article on the Paraiyans by the Rev. A. C. Clayton ; on some agricultural ceremonies in Malabar by Mr. C. Karunakara Menon, etc., was going through the press at the end of the year. The manuscript of a book on " Some Manners and Customs in Southern India," which will be published at the Madras Government Press, was completed, and deals with the following subjects :—

Marriage customs.
Death ceremonies.
Deformity and mutilation.
Omens; evil eye; charms; animal superstition ; sorcery ; *ex votos*.
Torture in by-gone days, and some stray survivals.
Corporal punishment in vernacular schools.
Dress.
Names of Natives.
Convade.
Earth-eating.
Boomerang.
Fire by friction and flint and steel.
Fire-walking.
Hook-swinging.
Meriah sacrifice.
Slavery.
Infanticide.
Steel-yards.
Clepsydras.
Knuckle dusters.
Cock fighting ; tallies, etc.

7. ANTHROPOLOGY.—In the course of an address, entitled Progress Report of the Ethnographic Survey of Madras, delivered before the British Association at Cambridge, I spoke as follows : " The scheme for a systematic ethnographic survey of the whole of India received the sanction of the Government of India three years ago. A Superintendent, or Director, was appointed for each Presidency and Province, to carry out the work of the survey, and, I am sorry to say, write a book, in addition to his other duties. The other duty, in my particular and solitary case, the direction of a large local museum at Madras, luckily makes an excellent blend with the survey operations, as the work of collection for the ethnological section goes on synchronously with that of investigation. The survey is financed for a period of five years, which is all too short a period, and an annual allotment of Rs. 5,000 provided for each Presidency and Province, which includes Rs. 2,000 for bonuses for approved notes and monographs, and replies to the stereotyped series of questions, which are circulated to intelligent natives, European officials and missionaries. The replies to these questions are, I am bound to admit, not always entirely satisfactory, as they break down both in accuracy and detail, and detail is what is most required. I referred just now to my museum being a local one, but the local patch is rather extensive and widespread, as my beat covers an area of 150,000 square miles, with a population of about 40,000,000. The area of England, Scotland and Ireland is, I believe, only 121,000 square miles. It is clearly impossible for a single man, in his travels, to do more than scratch on the surface of a portion of so vast an area, which provides ample scope for research by many trained European explorers. And I would that more men, like my friends Dr. Rivers and M. Lapicque, who have recently studied man in Southern India from an ethnological and physiological point of view, would come out to Madras, and study one or more important tribes or castes in detail. I can promise them unofficially that the Madras Government will give them all facilities for carrying on their work under the most favourable conditions for work, if not of climate. Routine work at head-quarters unhappily keeps me a close prisoner in the office-chair for about eight months in the year, but I endeavour to snatch four months on circuit in camp, during which the dual functions of the survey—the collection of anthropometric and

ethnographic data—are carried out in the peaceful isolation of the jungle, in villages and in mofassil (up-country) towns. And these wandering expeditions afford ample evidence that delay in carrying through the scheme for the survey would have been fatal. For, as in the Pacific and other regions, so in India civilisation is fast bringing about a radical change in indigenous manners and customs, and mode of life. In carrying out the anthropometric portion of the survey, it is unfortunately impossible to disguise the fact that I am travelling as a Government official, and very considerable difficulties are encountered owing to the wickedness of the people, their timidity, and fear of increased taxation, plague inoculation, and transportation. Sometimes, when in camp, I may, so far as measuring operations are concerned, draw a perfect and absolute blank for several days in succession. Or a gang of fifty, or even more representatives of different castes, may turn up at the same time, all in a hurry to be off as soon as they have been sufficiently amused by the American series of pseudoptics (illusions), which, with the hand dynamometer for determining the hand-grip, now always accompany me on my travels as an attractive bait. When this occurs, it is manifestly impossible to systematically record all the major or any of the minor measurements, which are prescribed in "Man", "Anthropological Notes and Queries", and elsewhere. And I have to rest unwillingly content with a bare record of those measurements, which experience has taught me are the most important from a comparative point of view within my area, viz., stature, height and breadth of nose, and length and breadth of head, from which the nasal and cephalic indices can be calculated. I refer to the practical difficulties in explanation of a record, which is admittedly meagre, but wholly unavoidable, in spite of the possession of a good deal of patience, and a liberal supply of cheroots and current coins, which are often regarded with suspicion, as sealing a contract, like the King's shilling. I have known a man get rid of the coin presented to him, by offering it, with flowers and a cocoanut, at the shrine of the village goddess, and present her with another coin as a peace-offering, and to get rid of the pollution caused by my money."

The most important event during the year was the acquisition, by purchase, of the prehistoric and protohistoric collection, brought together, in the course of long service in India, by Mr. R. Bruce Foote. The main importance of this collection, so far as this museum is concerned, is that it forms a very valuable supplement to the existing collection, which was previously composed mainly of articles in pottery and iron, and very deficient in articles in stone. Working, as he did, for many years in Southern India as an officer of the Geological Survey, Mr. Foote brought together a magnificent collection of palæolithic and neolithic celts, hammers, mealing-stones, scrapers, cores, bangles, beads, etc., from the Salem, Bellary, Anantapur, Kurnool, and other districts, to which he later added a representative collection from the Nizam's dominions, Baroda, Kathiwar, Chota Nagpur, and other localities in the north. A check-list was being printed at the end of the year, and the collection will be hereafter exhibited either in the new annexe, to which I have referred, or in a special annexe, which will have to be built. The new annexe was constructed to contain the large prehistoric or protohistoric collection excavated by Mr. A. Rea, Superintendent of the Archæological Survey, the arrangement of which is in active progress.

Among the additions to the ethnological section, the following may be noted:—

Primitive type of lute with snakes painted on it, used by the Pulluvans of Malabar when engaged in their professional work as sorcerers.

Collection of brass articles representing the five mudras, viz., conch-shell (*Turbinella rapa*), chakram or discus, padma (lotus), gadha (weapon of the gods), and Narayana, which are waved round the god, and dedicated as votive offerings at temples in South Canara.

Brass and clay figures (*ex votos*) of tiger, leopard, elephant, wild boar and bandicoot rat, offered at the shrine of a bhūtha named Poonamikuhoomani, to protect the crops and cattle against the ravages of these animals; and a brass figure of Sharabba, a mythological eight-legged animal, supposed to be the vehicle of the god Vīrabhadra, and presented as an offering at Śiva temples in South Canara, in cases where a person is attacked with a form of ulcer known as siva poonoo, or siva boil or sore. These brass and clay figures must be solid, as the bhūthas would be angry if they were hollow.

Silver votive offerings from Hindu temples at Tirupati and elsewhere, consisting of flag, umbrella, sandal, human female figure, cobras entwined, figure of goddess, ears, legs, hand, navel, breast, eyes, etc.

Tobacco-pipe made of the green leaf-stalk of the plantain (*Musa sapientum*), smoked by pilgrims on the west coast. A piece, about eighteen inches in length, is cut off, and a hole bored at the thicker end, through which a thin stick (usually the midrib of a cocoanut leaf) is passed through the stalk for about twelve inches. This forms the tube of the pipe, and communicates with a notch cut in the middle of the leaf-stalk. A funnel, made of the leaf of the jāk (*Artocarpus integrifolia*) is placed in the terminal hole, and filled with tobacco or ganja (Indian hemp). The material to be smoked is lighted with a piece of burning charcoal, and the pipe drawn by applying the lips to the notch. Such a pipe is only used once or twice, and thrown away.

Knife carried by women after delivery, who keep iron in some form, *e.g.*, a small crow-bar, knife, or nails, with margosa (*Melia Azadirachta*) leaves, in the room, and take it about with them when they go out. Sometimes an old shoe is placed in the lying-in chamber, and kept there during the period of pollution.

A toy called the frog (tavalaikā or mēnghi), consisting of a cup-shaped or conical clay tambour, the mouth of which is closed by stout paper, connected by means of a horse-hair string with a stick, over which rosin has been smeared. When the tambour is whirled round, the horse-hair, as it winds itself round the stick, produces a sound, which is an excellent imitation of the frog-croaking on a monsoon night. The toy is hawked about the streets by Muhammadan boys on all occasions of festivals. The first specimen which I ever saw was in the possession of Dr. A. C. Haddon at Cambridge, and the paper covering the tambour bore a printed advertisement of Dindigul cheroots.

Copper water-clock (clepsydra) from South Canara.—This form of clock was, Mr. Percy Brown informs me, introduced by Mr. J. L. Kipling for use by the police at the Lahore Museum, as the clock was always getting out of order. The bowl is a copper one floated in an earthen bowl, and takes an hour to sink. It is in charge of the policeman on duty.

A small collection of prehistoric stone implements from the Fayūm oasis in Egypt, was presented by Mr. H. W. Seton-Karr. A number of stone implements from the Cuddapah district were received from Mr. Bannatyne Macleod, and a red polished pot, found in the bed of the Cauvery river at Trichinopoly, was forwarded by Mr. Stroud Wilson.

The iron-cage gallows, with their massive wooden framework, from Beluguppa in the Anantapur district, referred to in my last annual report, were set up in the hall of the new building, close to the Meriah sacrifice post.

During my absence, the work of the Ethnographic Survey was conducted by Mr. K. Rangachari, who carried out his duties with zeal, and with a clear appreciation of the objects of the survey. He made numerous tours in the Tamil and Telugu countries, during which he obtained valuable notes on many important castes and tribes, and took about two hundred photographs illustrating the people, their dress, and ceremonials. In my absence, the anthropometric work was at a stand-still. This section of the work of the survey is undertaken entirely by myself. My personal error is, as the result of long practice, constant, and I prefer that the data, to be worked up hereafter in comparative form, should be based on the work of one man, rather than of several men, with varying error of both personal equation and instruments used. The following stray notes are taken from Mr. Rangachari's diary :

"Of the various Telugu shepherd castes, the Puni Gollas claim to be the highest. Just before their marriage ceremonies they perform Ganga worship, which is an elaborate and costly rite. For it designs (muggu) are made on the floor with coloured powders by Mādiga musicians, called Mādiga Pambala vandlu, and to them cooked rice, fruit, fowls, etc., are offered. On the last day of the funeral ceremonies of some Telugu castes, muggus are, in like manner, made by Māla musicians and story-tellers, who recite the story of Ankamma and other deities.

"True totemism, at least as regards prohibition, is found here and there among the Telugu castes. Thus, among the Motāti Kapus, people of the Yenigala (elephant) exogamous sept may not touch articles of ivory. Fowls are not reared or eaten by

Motātis of the Kodi (fowl) gotra. Tsakalis, whose house-names are derived from the pumpkin, jasmine, and *Momordica Charantia*, must avoid going near these plants. The belli (silver) sept of Toreyas are not allowed to wear silver toe-rings.

"A curious custom, in the Telugu country, is the offering of rags to a god called Pathalayya (Mr. Rags), to whom no special temple is dedicated. On the trunk-roads in the Nellore district, rags may be seen hanging on the babūl (*Acacia arabica*) trees. These are offerings made to Pathalayya by travellers, who tear off pieces of their clothing, with a vague idea that the offering thereof will render their journey free from accidents, such as upsetting of their carts, or meeting with robbers.

"Among the Pallis, a few families have isolated themselves in a village called Kumalam in the South Arcot district. All wear the sacred thread, and dress like orthodox Vaishnava Brahmans, and they maintain temples of their own, worship wherein is conducted by themselves. They call themselves Rayan (the original title of the Kshatriyas), and would have us believe that they represent Kshatriyas, who have not, like the Pallis, given up their customs. The ordinary Pallis call them Kovilar (temple people), and give their girls in marriage to them. But Kovilar girls are not given to the Pallis. In consequence of this tendency to hypergamy, some of the Kovilar men are, in order that all the girls may receive husbands, obliged to take more wives than one. Hypergamy can also be traced in a section of Telugu Saivite Brahmans (Thummagunta Drāvidas), who have become Vaishnavas. They will take girls in marriage from the Smartha section, but never allow their girls to marry into it.

"On my way to Kumalam village, I found a pseudo-hook-swinging ceremony being performed in a roadside hamlet. The beam had a sheep tied to it, in lieu of a human being. One family had taken a vow to tie their child to the beam for one revolution thereof, but the police objected, and the child's clothes and a sheep were swung in substitution.

"Ancestor worship is practiced by the Thottiyans of the Madura district in a peculiar manner. They have places of worship called mālē, where a wooden pillar, carved with human figures, is set up beneath a canopy. All round it are a number of stones, representing dead members of the community, arranged in a circle, which are periodically worshipped.

"A Tamil caste in the Madura and Tinnevelly districts, called Pendukkumekki Idaiyan (shepherd caste) observes the matriarchal form of inheritance of property. The property belongs to the wife, and the husband has no claim to it. It passes to the daughter, and the sons can only claim maintenance until they are married."

8. Numismatics.—Two Roman gold solidi, of Nero and Hadrian, were forwarded to the museum by the Sub-Magistrate of Ongole in the Guntúr district. These coins were found, with a number of others, on the bank of the Paleru river, by a native, who unfortunately disposed of the rest of the find, to pay off his debts and purchase land. He was convicted under the Treasure-trove Act, and sent to prison. The readings of the coins are as follows:—

Nero—

Obv.—Imp. Cæsar Augustus. Laureate head of Nero r.

Rev.—Juppiter Custos. Jupiter seated l.

Hadrian—

Obv.—Hadrianus Augustus. Laureate head of Hadrian r.

Rev.—Cos. III. The Emperor, with a javelin, on horse galloping r.

A large mass of copper coins of the English East India Company and Mysore (Muhammadan invasion period) was acquired by purchase at Udipi in South Canara. The Company's coins were mainly Bombay four, two, single, half and quarter paisās (type, bale-mark and scales of justice), with various dates from 1802 to 1829, of which duplicates have been distributed to other museums. The series of coins of Haidar Ali and Tīpū Sultān, in addition to a large collection of common types from the Patan (Seringapatam), Nagar (Bednur) and Bangalore mints, included an exhaustive series of coins struck at the Bellary, Calicut, Farakhi, Farakhbab-hisar, Faiz-hisar, Islāmabād

or Salāmabād, Khalakhabad, Khorshidsuād and Nazarbar mints. The addition of these coins to the museum collection will, I imagine, make it the finest existing collection of Mysore coins.

From the sale of the White King collection of coins at Amsterdam, the following gaps were filled in:—

English East India Company—

Charles II. Pice. Type, shield with ships, and legend MON (or MONETA) BOMB[AY] ANGLIC REGIM.

Pice. Type, bale-mark and lion.

Madras half-pagoda. Rare type with thirty stars round the temple gopuram, and five-fold border of dots round the figure of Vishnu.

Cambay rupee, 1288.
Madras, 20 cash. Type, orb and cross, and date 1796.
Prince of Wales' island. Half and quarter rupees, 1788.

Dutch—

Java rupee and half rupee, 1228.
Negapatam. Thick 25 cash.
Pulicat, 8, 5, 4 and 2 cash.

Cochin. Lead bazaruco. Monogram V.O.C. with 8 above, and device bearing some resemblance to a harp.

Ceylon—

Copper ingot, VI stuiver.
Half and quarter stuiver.
Lead duits, 1789 and 1790.

Danish East India Company—

Fano, Frederick IV, 1730.
Fano, Christian VI, 1731.
Royalin, Frederick V.

Gold pagoda, Christian VII. Crowned monogram on a granulated surface, and figure of Vishnu as on the English Porto Novo pagoda.

Two royalins, Christian VII.

The coins, for which the museum was indebted to various Governments, societies, and private individuals, are recorded in appendix A.

Some of the Andhra lead coins, deposited in a wooden cabinet within an iron safe, were found to be reduced to powder. Specimens were forwarded to Dr. W. H. Wilson, Professor of Chemistry at the Presidency College, who reported as follows on them: "The metal is converted into carbonate. I attribute it, from the information you have supplied, to the following causes. In the presence of air and moisture, lead slowly oxidises, and is then, by the carbon dioxide of the air, converted into carbonate The moisture has been supplied by the atmosphere, and, I imagine, to a greater extent by the wood, of which the cabinet is constructed. The newer the wood was when the cabinet was first used, the more moisture it would contain. Preventing ventilation, and escape of moisture by enclosing it in an air-tight iron safe, would increase the action. The substances contained in the sap of the wood would also increase the action on the metal. Opening the safe and cabinet at long intervals, and for short periods only, would also increase the action, as fresh air would be introduced, while the wood would not dry. It is not at all unlikely, if the wood was very green when made into the cabinet, that fermentation processes, with evolution of carbon dioxide, have taken place, and the rapidity of the action been thereby greatly accelerated." Of twenty-six Andhra lead coins, all of the same type, and received at the same time under the Treasure Trove Act in 1902, which were placed in the same compartment of a drawer in a cabinet inside an iron safe, thirteen are ruined by chemical changes, while the remainder show no sign of deterioration.

9. Archæology and Art.— A stone slab, recording the death of a hero in battle, and found at Morapur in the Salem district, was received from the Government Epigraphist. Copper-plate grants, which formed part of the unclaimed property of a Bairági, were received from the Collector of Nellore. They were reported by the Government Epigraphist to contain an inscription dated the fifth year of the ancient Pallava King Simhavarman, who issued the grant published by Fleet in the Indian Antiquary, Vol V., 154 *sq.* The inscription will be edited in due course in the Epigraphia Indica. A copper-grant, purchased in the Tirupati bazaar, gives the following legend ;—In the Saka year 1200, a car was made for the goddess Kálikadévi of Conjeeveram by certain Pánchánanas (artisan caste). While it was being taken to the temple, a magician stopped it by incantations. The help of another magician was sought, and he cut off the head of his pregnant daughter, hung it on the car, and performed certain other rites. The car then moved, and the woman, whose head had been cut off, was restored to life. Certain endowments were made by the Pánchánanas in favour of the magician who performed these miracles. The grant is believed by the Government Epigraphist to be a forgery.

A wooden plaque, carved with the monogram of Christian V. of Demmark, was received from the Dansborg at Tranquebar, the former head-quarters of the Danish East India Company. The date 1617 was recorded at the bottom of the painted plaque, but Christian V. only came to the throne in 1670. It has been suggested by the Rev. W. H. Blake that the plaque commemorated not only the year (1617) in which the King of Denmark received a visit from a Dutch merchant from Ceylon, which resulted in the Danes obtaining possession of Tranquebar by treaty with the Naik rulers of Tanjore, but also the year (1670) in which a new charter was granted to the Danish East India Company. I further received a photograph of the silver communion plate preserved at Christian Church, Tranquebar.

An old cannon from the Vemla fort in the Cuddapah district, captured by General Campbell in 1800, was received.

The question of the publication of pattern-books of design being referred to me by Government, I pointed out, *inter alia*, that in 1897 I recommended that the School of Arts should prepare a set of patterns, to act as a guide to designers and manufacturers of piece-goods, and suggested that this recommendation should now be carried out by myself. The Museum already possessed a series of selected wood-blocks collected in the course of his industrial tours by Mr. E. B. Havell, who " found at Walajanagar and Arcot, in nearly every house where block-printing was carried on, old blocks of very elaborate and beautiful designs, many of them of Persian origin, piled up in corners or in the roof, covered with dust, or, in some cases, cut in pieces and utilised for the patterns now in use, which are very poor, and altogether inferior to the old ones." Of these splendid blocks Mr. Havell managed to secure some two hundred. I deputed my personal assistant to visit Walajanagar, Masulipatam, and other centres of the block-printing industry, to purchase, for the purpose of the proposed pattern-book, a further series of old blocks, of which a very large number were acquired. In some cases the possessors of the blocks declined to part with them, lest they should get into the hands of, and be copied by, manufacturers of piece-goods in Europe, whose fabrics are imported to India.

10. Natural History.—The opinion of Dr. Henderson was invited by Government in connection with the draft of a Bill to make better provision for the protection and preservation of game and fish. His interesting letter on this subject is reproduced as an appendix to this report. At the request of Mr. J. H. Stone, Inspector of Schools, Dr. Henderson drew up a list of natural history specimens (with prices supplied by a local taxidermist), which would be suitable for training schools, but stated that "it seems to be important not to provide all the articles ready for the teacher. The pupils are more likely to be interested in a collection, which they see growing before their eyes, and in the formation of which they feel that they have got a share."

Dr. Henderson made a prolonged tour on the Palni hills, and paid a shorter visit to Yercaud on the Shevaroy hills, in the course of which considerable collections of birds, mammals and reptiles were made. It is, I believe, his intention to publish an

account of the snakes in the journal of the Bombay Natural History Society. It would be beyond the scope of the present report to publish a complete list of the animals collected, but the following may be noted :—

Crocidura murina, Brown musk shrew—Palnis.
Vandeleuria oleracea, Long-tailed tree-mouse—Pallavaram.
Mus blanfordi, White-tailed rat—Palnis. Previously represented by young specimens only.

Sciurus macrurus, Grizzled Indian squirrel—Shevaroys. Not previously represented in the collection.

Xantharpyia amplexicaudata, Fulvons fruit-bat—Nellore.
Hipposiderus bicolor, Bicoloured leaf-nosed bat—Pondicherry.
Megaderma lyra, Indian vampire bat—Seringapatam.
Vesperugo mordax, Grizzled bat—Tinnevelly.
Vesperugo tickelli, Tickell's bat—Cuddapah.
Cerivoula picta, Painted bat—Madras.
Taphozous melanopogon, Black-bearded sheath-tailed bat—Nellore.
Rhinopoma microphyllum, Long-tailed bat—Tirupati.

An Indian edible-nest swiftlet (Collocalia fuciphaga), with nest and eggs, from a cave on the Nilgiris near Musnigudi, was presented by Mr. W. S. Rowson, who describes the floor of the cave as being several feet deep in excrement, beetle's wings, legs, etc.

A specimen of the backwater crab, Varuna litterata, was captured in the drawing-room of a private house in Kilpauk, whither it must have strayed from the Cooum river.

To Mr. D. Dewar the Museum was indebted for a number of species of birds collected locally, and to Mr. S. K. Sundaracharlu for a variety of animals collected in different parts of the Presidency.

11. Connemara Public Library.—The total number of readers during the year was 17,278 against 16,055 in 1903-1904—

Largest number of readers in a day	.. ..		153
Smallest	„	„	5
Largest	„	Sunday	136
Smallest	„	„	30

The number of standard works added to the library was 324, of which 292 were acquired by purchase and 32 presented.

As usual I append, as a general indication of the class of literature resorted to by readers, a list of books issued during the last two years under each subject catalogue head :—

	1903-1904.	1904-1905.
Anatomy; biology; natural history; zoology	1,315	1,022
Anthropology; folklore	694	653
Archæology; architecture	384	353
Arts; industries	574	823
Atlases; maps	76	80
Belles lettres	1,676	1,620
Botany; arboriculture; horticulture	291	281
Chemistry; agriculture; photography	348	659
Classics	311	262
Dictionaries; encyclopædias; gazetteers; manuals ..	4,247	4,178
Economic products	82	153
Education; ethics; logic; metaphysics; philosophy; political economy	2,599	1,515
Exhibitions	119	73
Forestry; timbers	48	77
Geography; physical geography; physiography	80	115
Geology; palæontology	146	102
History	2,050	2,142
Jurisprudence	671	512
Medicine; surgery; pathology	631	456
Microscopy	58	63

	1903-1904.	1904-1905.
Mineralogy; metallurgy	90	54
Natural philosophy	515	627
Numismatics; medals; heraldry	118	79
Philology; epigraphy	216	236
Photographs	86	101
Physiology	451	412
Public health	307	274
Religion	810	655
Sports and games	233	392
Travels; voyages	385	312
Fort St. George Gazette (other than current issues) ..	974	1,009
Vernacular language	137	271

The Madras Literary Society's Library, which has for some years been temporarily housed in the Connemara Library, was transferred to its new home in Nungumbakkam. The books belonging to the Victoria Technical Institute Library were arranged in the space thus set at liberty, and a catalogue thereof was printed during the year.

In connection with the proposal that the University Library should be established and organised in connection with the Connemara Library, I met the Hon'ble Mr. A. G. Bourne and Mr. J. B. Bilderbeck as representatives of the University, and submitted, in my No. 296, dated 18th March 1905, suggestions with regard to the necessary establishment, rules, and management of the conjoint libraries, and for increasing the book-space.

12. VALUABLE STOCK.—The necessary inventory was maintained, and duly checked.

APPENDIX A.

Donations, 1904–1905.

Amarampalam, Forest Range Officer—
Flowers of *Cedrela Toona*.

Anantaraman, Mr. M.—
Insects from Chingleput.

Andrew, Rev. A.—
Snake (*Callophis trimaculatus*).

Asiatic Society of Bengal—
Coin of Sikandar bin Ilyas found in the Nadia district.
Gold coin of a king of the Kushans (5th century A.D.).
Silver coin of Farrukhsiyar, Shah Jahanabad Mint, found in the Ludhiana district.
Silver coin of Siva Singh, struck by order of Begam Pramatheshair Shah.

Benson, Mrs.—
Hawk-moth caterpillars.

Chandragiri, Range Officer—
Wood of *Acacia ferruginea*.

Chingleput, District Forest Officer—
Bark of *Erythroxylon monogynum* and gums of *Terminalia belerica* and *Soymida febrifuga*.

Colville, Mr. H. V. S.—
Green tree snake (*Passerita mycterizans*).

Cuddapah, Collector—
Old cannon from the Vemla fort.

Cuddapah, Forest Range Officer—
Green fruit of *Buchanania latifolia*.

Dewar, Mr. D.—
Purple coot (*Porphyrio poliocephalus*).
Kite (*Haliastur indus ?*).
Wood shrike (*Tephrodornis pondicerianus*).
Owl (*Asio accipitrinus*).
White-throated munia (*Uroloncha malabarica*).
Syke's tree warbler (*Hypolais rama*).
Brown fly-catcher (*Alseonax latirostris*).
Ashy wren warbler (*Prinia socialis*).
Little ringed plover (*Ægialitis dubia*).
Indian pipit (*Anthus rufulus*).
Ashy-crowned finch-lark (*Pyrrhulauda grisea*).
Yellow-throated sparrow (*Gymnorhis flavicollis*).
Madras bush lark (*Mirafra affinis*).
Indian lesser white-throated warbler (*Sylvia affinis*).
Indian red start (*Ruticilla rufiventris*).

Dobbs, Mrs.—
Crab (*Varuna litterata*).

Foulkes, Mr. R.—
Snake (*Trimeresurus macrolepis*) from the Palni Hills.

Gibson, Mr. W. G.—
Snake (*Lycodon aulicus*).

Government Epigraphist—
Stone slab from Morappur.

Hajee, Mr. P. K. T.—
Eight copper coins.

Hatchell, Mr. D. G.—
Yellow-throated bulbul (*Pycnonotus xantholæmus*).
Bats (*Scotophilus kuhlii* and *Hesperoptenus tickelli*).
Lizard (*Varanus bengalensis*).

Higginbotham, Mr. C. H.—
Painted bat (*Kerivoula picta*).

Iswariah, Mr. A.—
Insects from Conjeeveram.

Jervis, Miss A. E. S.—
Water colour drawing of *Gloriosa superba*.

Krishna Menon, Mr. C.—
Cocoons of the silk worm (*Cricula trifenestrata*).

Krishnan Nair, Mr. P.—
Young frugivorous bat (*Cynopterus ?*).

Macleod, Mr. B.—
Collection of palæolithic implements from Cuddapah.

Mannargudi, Sub-Magistrate—
Three copper Malacca coins.

Markapur, Forest Range Officer—
Bark of *Ficus Tsiela*.

Moopan, Mr. C. M. R.—
Silver and copper coins.

Mugaset, Mr. K. D.—
Indo-French silver coin.

Municipal Commission, Madras—
Sarus crane (*Grus antigone*).
Coloured parrot.
Sambar deer (*Cervus unicolor*).
Leopard (*Felis pardus.*)
Indian Bear (*Melursus ursinus*).
Kangaroo.
Crocodiles.

Murti, Mr. C. S.—
Vampire bats (*Megaderma lyra*).

Nellore, Collector—
Copper-plate inscription and transcription.

Northern Circle, Conservator of Forests—
Fruits of *Gardenia turgida*.

North Coimbatore, District Forest Officer—
Timber of *Albizzia Lebbek* and *Melia Azadirachta*.

North Malabar, District Forest Officer—
Leaves and flowers of *Bauhinia variegata*.

North Salem, District Forest Officer—
Roots, leaves and fruits of *Cadaba indica*.

Ongole, Stationary Sub-Magistrate—
Two gold coins (Roman solidi).

Periyanayakam, Mr. E.—
Grizzled bat (*Vesperugo mordax*).

Pithapuram, Minor Rajah—
Minute cocoanut and bael fruit mounted in gold.

Polur, Range Officer—
Myrabolams.

Ramachandran, Mr. A.—
Insects from Saidapet, St. Thomas' Mount, Pallávaram and Madras.

Ramachandra Iyer, Mr. A. V.—
Cork-bark (*maravuri*) used for clothing.

Rawson, Mr. W. A.—
Indian edible-nest swiftlet (*Collocalia fuciphaga*), with eggs and nests.

Rea, Mr. A.—
Charcoal and fused iron from Vijianagar.
Tirusula from Coorg.
Thirty silver coins. Travancore chukrams, Cannanore and Tellicherry issues of the English East India Company, Indo-French coins, and coins with Arabic legends.

Rencontre, Mr. E.—
Black scorpion (*Palamnæus swammerdamii*).

Royal Asiatic Society (Bombay Branch)—
Silver coins of Aurangzib, Muhammad Shah, Ahmad Shah and Alamgir II.
Six copper coins of Firuz Shah.
Copper coin of Muhammad bin Tughlak.
Copper coin bearing conjoined names of Firuz Shah and his son Fattikhan.
Copper coin of Jalal-ud-din Firuz Shah found in the Kaira district.

Sandúr, Forest Range Officer—
Timber of *Poinciana elata*
„ *Vitex altissima.*
„ *Ægle Marmelos.*
„ *Albizzia amora.*
„ *Artocarpus integrifolia.*
„ *Acacia Catechu.*

Sandúr Range, Extra Assistant Conservator of Forests—
Fruits and resin of *Gardenia lucida.*
Gum of *Gardenia gummifera.*

Satyamangalam, Range Officer—
Fruits of *Garuga pinnata* and *Gmelina arborea.*

Seton-Karr, Mr. H. W.—
Stone prehistoric implements from Fayúm, Egypt.

Sheshu Bhut, Mr. M.—
Two copper coins.

Smith, Mr. J. G.—
Snakes (*Bungarus cæruleus* and *Simotes arnensis*).

South Coimbatore, District Forest officer—
Bark and gum of *Pterocarpus Marsupium.*
Timber of *Dalbergia latifolia* and *Grewia tiliæfolia.*
Gum of *Sterculia urens.*
Leaves of *Pterocarpus Marsupium.*
Bark and fibre of *Grewia tiliæfolia.*
Seeds and leaves of *Sterculia urens.*

South Salem, District Forest Officer—
Herbarium specimens of leaves of *Erythrina indica*, with seeds and flowers.

Subbarama Iyer, Mr. T. N.—
Silver and copper coins.

Sundaráchárlu, Mr. S. K.—
Earth snakes, beetles and shells from Tanjore.
Snake, *Simotes arnensis.*
Centipedes and shells from Venkatagiri hills.
Miscellaneous collection from People's Park, Madras.
Galiodes.
Scorpions (*Buthus hendersonii*) from Tanjore.
Mouse (*Vandaleuria oleracea*).
Field mice.
Bufo, sp.
Collection of insects from Tanjore, Venkatagiri hills, St. Thomas' Mount, etc.
Fulvous fruit bat (*Xantharpygia amplexicaudata*).
Black-bearded sheath-tailed bat (*Taphozous melanopogon*) from Nellore.
Long-tailed bat (*Rhinopoma microphyllum*) from Tirupati.
Nest and eggs of the night Heron (*Nyclicorax griseus*).

Tanjore, Forest Range Officer—
Bark and root bark of *Cassia Fistula.*

Thimmappah, Mr.—
Strong well-grown stems of the tobacco plant.

Tinnevelly, District Forest Officer—
Timber of *Heritiera papilio* and *Dillenia pentagyna.*
Bark of *Nephelium Longana.*

Tiruvalur, Inspector of Salt, Abkári and Customs Department—
Cocoanut crown saplings. The spathe produced large numbers of young fruits, which have given rise to young plants instead of nuts. On planting these seedlings, they did not strike root.

Trichinopoly, District Forest Officer—
Dalbergia Sissoo root, leaves, and raspings of wood.

Uni Choyi, Mr. M.—
Four copper coins.

United Provinces Government—
Six silver coins.
Five coins found at Mauza Nota, Jhansi district.
Six coins found at Mauza Bhadewan in the Sitapur district.
Five coins found at Gudanpur.
Two silver coins found at Mohalla Ghatiza Azamkhan, Agra district.
Seven coins found at Faridpur, Bareilly district.

Coin found in the Muttra district.
Coins found at Mauza Garhi Har Rai, Agra district.
Coins found in Bareilly.
Coins found at Pidan village, Allahabad district.
Gold coin found on the ruins of the fort at Sakit in the Etah district.
Coins found at Bhagesar village, Allahabad district.
Coins found at Farakat in the Jaunpur district.
Coins found at Jakhauli village, Bara Banki district.
Silver coins found in Kaurala village, Moradabad district. Pathan rupees, alla-'ad-din Muhammad Shah.
Silver coin found in Mauza Gobindpur, Mainpuri district. Rupee Sháh Álam, Ahmadnagar, Farrukhabad.

Venkatappa, Mr. M.—
Old brass comb.
Knife carried by women after accouchement.
Copper coins.

Venkoba Rao, Mr. G.—
Nest of hornet (*Vespa cincta*).

Vint, Mr. J. A.—
Abnormal double chicken.

Wilson, Mr. J. S.—
Earthen pot found in the bed of the Cauvery river.

Wilson, Mrs. W. H.—
Jungle cock (*Gallus Sonnerati*).

Wright, Mr. H. N.—
Silver coins of Aurangzib—Surat, Bareilly, Burhampur and Etawa mints.
Ten silver coins of Sher Sháh and Islam Sháh.

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APPENDIX B.

Protection and Preservation of Game and Fish.

With reference to the letter from the Government of India, Home Department, Public, No. 1082, dated 23rd May 1904, accompanying a Draft Bill for the protection and preservation of game and fish which has been forwarded to me for my opinion, I have the honour to submit the following:—

That there are many species of game and other animals possessing a commercial value in India, which are in need of protection and preservation, admits I think of no doubt; evidence to show that game is becoming scarcer is procurable from sportsmen all over the country, and the scarcity has undoubtedly followed as the natural consequence of unrestrained destruction of animals, regardless of immaturity, sex, or season. Two conditions provided for in the Bill, which would go far to check the evil if rigorously enforced, are (1) the establishment of a close season during breeding times, (2) placing a limit to the number of head of game or other animals which a single individual is permitted to kill. With regard to the first of these conditions, it may be pointed out that our knowledge of the breeding season of many of the Indian mammals is still incomplete, and additional information is required before adequate close seasons can be prescribed. The majority of Indian birds have well defined and well ascertained nesting seasons, so that less difficulty would be experienced in their case in defining the close season. The conditions with regard to placing a limit on the number of animals killed would necessarily vary according to locality; in some places no limit may be necessary, while in others total prohibition for a certain period may be desirable.

The letter of the Government of India refers (paragraph 5) to the wholesale destruction of insectivorous birds, and its injurious effects upon the crops of the country. Information is still needed as to the food of these birds, in order to ascertain which of them are specially destructive to the insect enemies of crops. It will probably be found that some of the so-called insectivorous birds more than counterbalance any good they may do by destroying large quantities of grain.

The Draft Bill, while providing fully for "game" (clause 2), also makes provision for any other kind of animal which the Local Government may, by notification in the local official Gazettte, declare to be one which it is desirable to preserve from extinction." I am of opinion that certain animals, which are valued chiefly for their fur, should be protected in the same manner as "game" animals from the introduction of the Bill, for the restrictions placed upon game are likely to direct the attention of native shikāris (sportsmen) and others, specially to them. In Southern India there are at least three animals which it seems desirable to protect, viz., the large black monkey known as the Nilgiri Langur (*Semnopithecus johni*), the large brown flying-squirrel (*Pteromys Oral*), and the large Indian squirrel known locally as the Malabar squirrel (*Sciurus maximus*). The black monkey is shot freely by native shikāris, on the Pulneys and elsewhere who hold it in no special reverence; its flesh is eaten and the skin frequently sold. The two squirrels are also the possessors of handsome skins, and are so easily obtained in the localities where they are found, that their protection seems necessary. An animal which is interesting purely from the naturalist's point of view, viz., the slender loris (*Loris gracilis*) might also perhaps be protected during the breeding season. This lemur is sold regularly in Madras for medical purposes, and is, I believe, subjected to great cruelty.

Clause 6 of the Draft Bill makes provision for a close season for fish in "any specified stream flowing through a hilly tract, or in the head waters of any specified river." This clause might, I think, be enlarged to include hill lakes, which are not necessarily the head waters of definite streams, several of which, in different parts of India, have been specially stocked with fish. To take an illustration, though better once can doubtless be found, the lake at Kodaikanal contains an introduced fish (*Barilius gatensis*), which, though small, affords sport to many fly-fishers. In recent years the fishing has fallen off considerably, and a close season would probably benefit it. I am of opinion that the opportunity which the Bill presents might be taken to prevent the slaughter of countless fry, which takes place during the rains in ditches and other water channels conveying the overflow water away from the larger tanks. The young fish, acting under a strong migratory instinct, follow the stream, and are captured in great numbers by means of fine-meshed nets, baskets and cloths. If left alone, many of these fish would eventually reach neighbouring tanks, and restock them; while, if the fry were properly collected and distributed, there can be no doubt that immense benefit would result. In the interests of the people themselves, this reckless destruction of immature fish should be prohibited by law.

The prohibition of the sale of game, etc. (clause 7) during specified parts of the year in municipalities and cantonments is a much needed provision, and one which, so far at least as public markets are concerned, should not be difficult to enforce. In the Madras market, the common South Indian hare is sold throughout the year, and a large proportion of the females obtainable in the cold weather contain fœtuses. If this hare is worth protecting—which is perhaps open to question—its sale should be prohibited during the breeding season. With reference to the power to fix a fee for each head killed, I presume that this would apply only to mammals. I am of opinion that, for the purpose of this fee, sportsmen ought to be divided into only two classes—(1) residents in India and (2) visitors. I also think that the imposition of an export duty on horns, skins, etc., would fall rather hard both on the sportsman and the naturalist, more particularly when they have already in all probability paid a fee for killing the animal. If there is reason to suppose that the articles are being exported for commercial purposes, they ought, in my opinion, undoubtedly to be taxed, but it is different in the case of genuine trophies and *bonâ fide* natural history specimens. From neither point of view can reasonable objection be taken to the export tax at present in force on the skins and feathers of birds of known commercial value.

As regards the question of the protection of birds' eggs, I am of opinion that, with the possible exception of game birds, no special provision is necessary. The Indian school boy is not addicted to bird-nesting, and the few Europeans who indulge in it have taken up egg-collecting as a serious hobby, and are never likely to become so numerous that any apprehension on this score need be felt.

The question of the appointment of a special officer to advise the Government of India and Local Governments upon the administration of the Game Law is one of considerable importance. In connection with the working of the Bill, questions, chiefly of natural history, will doubtless arise, which sportsmen and local authorities have neither the time nor the inclination to enter into, and in all such matters the advice or opinion of an expert would be of great value. It is difficult, however, to see how a single person could be "in touch with sportsmen and sporting associations all over India," and in my opinion two or more officers would be required to carry out the work efficiently.

Finally, I am opinion that the Local Governments should be empowered to exempt from certain provisions of the Bill persons connected with museums in India or elsewhere, who are procuring specimens for public collections. Such collectors are never likely to be numerous, and special conditions could be laid down to strictly limit the amount of damage they might be likely to do.

J. R. HENDERSON,
Ag. Superintendent, Govt. Museum.

APPENDIX C.

CLASSIFIED list of expenditure of the Government Museum during the year 1904-1905.

	Actuals, 1904-1905.	Revised estimate, 1904-1905.
	RS.	RS.
Salaries—		
Superintendent	5,965	5,950
Exchange compensation allowance	202	250
Local allowance	2,600	2,600
Total ..	8,767	8,800
Permanent establishment, Government Museum—		
Herbarium keeper, first assistant, second assistant, senior and second taxidermists, writer, assistant writer, and 26 peons—33 persons	6,590	..
Permanent non-pensionable establishment, Government Museum—		
Three gardeners, three sweepers, six watchmen, water-pandal Brahmin, punkah-puller and chokra—15 persons	1,032	..
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons—6 persons.	2,655	..
Permanent non-pensionable establishment, Connemara Public Library—		
Servant (sweeper)—1 person	47	..
Total, Establishment ..	10,324	10,200
Allowance—		
Travelling allowance	1,142	1,200
Supplies and services—		
Cost of specimens purchased on tour	558	..
Objects of interest and coin purchased at head-quarters.	34,573	..
Fittings, furniture, etc., for the collections	2,127	..
Cost of books and publications	867	..
Library	1,818	..
Lithographic plates	484	..
Ammunition	38	..
Charges for feeding live animals	204	..
Expenses—		
Reading coin	7	..
Measurement	..	..
Total, Supplies and Services ..	40,676	41,000
Contingencies—		
Purchase of furniture (Europe stores)	19	..
Tour charges	165	..
Landing and shipping charges	12	..
Repairs to furniture	100	..
Cleaning charges	67	..
Postage charges	111	..
Telegraph charges	13	..
Telephone charges	200	..
Rents, rates and taxes	3,843	..
Office expenses including such articles as gum-pots, rat-traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vinegar, water-pots, ropes and match-boxes	601	..
Miscellaneous	190	..
Total, Contingencies ..	5,321	5,600
Grand Total ..	66,230	66,800

Order—No. 486, Educational, dated 14th July 1905.

Recorded.

2. The thanks of Government are due to all those who made donations to the museum.

(True Extract.)

H. D. TAYLOR,
Ag. Secretary to Government.

MADRAS: PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS.

REPORT ON THE ADMINISTRATION

OF THE

GOVERNMENT MUSEUM AND CONNEMARA PUBLIC LIBRARY

FOR THE YEAR

1905-1906.

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GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

LIBRARY ROYAL ASIATIC SOCIETY BOMBAY BRANCH

READ—the following paper:—

Letter—from E. THURSTON, Esq., Superintendent, Government Museum.
To—the Secretary to Government, Educational Department.
Dated—Madras, the 7th July 1906.
No.—28-D.

I have the honour to forward, for submission to His Excellency the Governor in Council, the report on the working of the Government Museum and Connemara Public Library during 1905-1906, and to request that I may be supplied with 160 copies for distribution to other museums, etc.

ENCLOSURE.

Administration Report of the Madras Government Museum for the year 1905-1906.

VISITORS.—The total numbers of visitors to the old and new buildings were 890,190 and 351,683 against 897,058 and 377,353 in 1904-1905. The largest number of visitors on a single day was 23,327 to the old, and 22,652 to the new building on 7th January (Dwadasi festival). The total numbers of visitors on Sundays were 88,800 to the old and 83,494 to the new building against 127,330 and 126,139 in 1904-1905. The excess last year was due to the fact that the Kannu Pongal festival fell on a Sunday. The number of gosha females who visited the Museum on the monthly Saturdays set apart for them was 8,263.

The Museum was visited by Their Royal Highnesses the Prince and Princess of Wales, who were received on arrival by His Excellency the Governor and Lady Ampthill. Special arrangements were made for gosha visits by the ladies of the families of Maharaja Sri Vikrama Deo of Jeypore, Maharaja Sri Rao Sir Venkatasvetachalapati Ranga Rao Bahadur and Kumara Raja of Bobbili, and the Zamindarini of Nuzvid.

2. BUILDINGS AND ESTABLISHMENT.—The Consulting Architect to Government was consulted concerning the construction of a new gallery for the pre-historic collection purchased from Mr. R. Bruce Foote, and of an annexe to the marine gallery.

A theft occurred, when I was absent on tour, of silver filigree ware. There was grave reason to believe that the theft was committed by some member of my staff, but no definite proof was forthcoming.

3. THEATRE.—The theatre was used on eight occasions during the year, as follows:—

Amateur Dramatic Society	4
Collegiate School, entertainment and prize-giving	2
Presidency Training School for Mistresses, prize-giving	1
Concert in aid of the settlement of ladies to work among poor European and Eurasian women	1

4. ANTHROPOLOGY.—The book referred to in my last report as "Some Manners and Customs in Southern India" was, with a change of title to "Ethnographic Notes in Southern India", in the stage of advanced proof at the end of the year. The greater part of my time, during the year under review, was devoted to a book on the tribes and castes of Southern India, on lines similar to Risley's "Tribes and Castes of Bengal", for which a mass of manuscript was prepared. The accounts of the majority of the more important castes and tribes are completed. But much investigation remains to be carried out, more especially in Ganjam and Vizagapatam, before the book is ready for publication.

In the course of the year I made two tours in connection with the work of the ethnographic survey, viz., to the Kurnool district, and to the Nilgiri hills and the Wynaad. The primary object of the visit to the former locality was to examine the Chenchus or Chentsus, who inhabit the jungles of the Nallamalai hills. But the opportunity was also taken to record the physical measurements of various Telugu classes inhabiting the plains of Kurnool at Nandyal and Pániyam. A detailed analysis of the results of examination of South Indian heads on the living subject will be published hereafter; and it will suffice, for the purpose of the present report, to place on record the following comparative data, showing the type of head in the Canarese and Marátha (North-West), Telugu (North-East), and Malayálam and Tamil (South) areas. The figures bring out clearly the correlation, so far as the type of head is concerned, between the inhabitants of the Canarese, Marátha and Telugu areas, who have a higher cephalic index than the dwellers in the Malayálam and Tamil countries.

Cephalic Index.

Tamil and Malayálam.		Canarese and Marátha.		Telugu.	
Tíyan	72·6	Bestha	77·1	Chenchu	74·3
Kádir	72·9	Kumba	77·3	Golla	77·5
Paraiyan	73·6	Bédar	77·3	Boya	77·9
Vellála	74·1	Agasa	78·5	Balija	78
Palli	74·2	Panchála	79	Kápu	78
Agamudaiyan ..	74·2	Holeya	79·1	Uppara	78·8
Uráli	74·6	Rangári	79·8	Mangala	78·8
Pallan	75·9	Vakkalíga	81·7	Yerukala	78·6
Idaiyan	76	Suka Sálé	81·8	Médara	80·7

Some Chenchus still exhibit the primitive short stature and high nasal index, which are characteristic of other jungle tribes, such as the Kádirs, Paniyans and Kurumbas. But there is a very conspicuous want of uniformity in their physical characters, and many individuals are to be met with above middle height or tall, with long narrow noses. A case is noted in the Kurnool Manual, in which a brick-maker married a Chenchu girl, and I was told of a Boya man who had married into the tribe, and was living in a gudem (Chenchu settlement). In this way is the pure type of Chenchu metamorphosed. By the dolichocephalic type of head, which, as shown by the foregoing table, has persisted, and which the Chenchus possess in common with various other jungle tribes, they are at once differentiated from the mesaticephalic dwellers in the plains near the foot of the Nallamalais. In one form of marriage among the Chenchus, the bride and birdegroom sit opposite each other with arrows stuck upright in the ground between them. The importance of the arrow with the Chenchus as with the Yánádis of Nellore is that the moment when it casts no shadow is the auspicious time for the completion of the marriage rites. A gang of nomad Yerukalas, whom I examined at Nandyal, absolutely refused to sit on a chair, and I had to measure their heads while they squatted on the ground. To get rid of my evil influence, they subsequently went through the ceremony of waving red coloured water (arati) and sacrificing fowls.

During my stay on the Nilgiri plateau, detailed enquiries were made concerning the " manners and customs " of the Badagas and Kotas. The visit to the Wynaad was made with the object of clearing up the identity of the Naikers, who are separated from the Kurumbas in a note published by M. Louis Lapicque in the Comptes rendus des Séances de la Société de Biologie. From an examination of them at Cherambádi, I gathered that the name Naiker or Shóla Naiker is applied to Jén Kurumbas who have settled in the neighbourhood of that village, and work for Chettis or on the estates of European planters.

In the course of his investigation of the Todas of the Nilgiris, who practice the adelphic form of polyandry, Dr. W. H. R. Rivers found that, of 320 males examined, 41 or 12·8 per cent., and of 183 females only 2 or 1·1 per cent. were typical examples of red-green colour-blindness. During my visit to the Nilgiris I examined the male Badagas and Kotas with Holmgren's wools, and as a control with the apparatus known as Lovibond's tintometer. The result was that red-green colour-blindness was found to be present in 6 out of 246 Badagas, or 2·5 per cent.; and there was no suspicion of this type of colour-blindness in 121 Kotas who were tested. Both the Badagas and Kotas afforded an example of what Dr. Rivers calls the Torres Straits type, *i.e.*, "red was confused with pink, green with blue, and blue with violet, the

two last errors being due to deficiency of nomenclature and to some insensitiveness to blue". It may be accepted as a general proposition that the natives of Southern India, Brahman, non-Brahman, and Muhammadan, have a greater appreciation for and are more sensitive to yellow and pink than blue.

The visual acuity of the Badagas, Kotas, Chenchus and others was examined by means of Cohn's letter E, number 6, and I may here place on record the average distance in metres at which the letter was recognised by the various classes examined by Dr. Rivers, Mr. Rangachari and myself in Southern India—

		METRES.
16	Shólagas (Rivers)	12·9
94	Kotas	12·8
180	Badagas	12·6
50	Tamil Paraiyans	12·5
58	Telugu agriculturists	12·4
28	Chenchus	12·3
55	Urális (Rivers)	12·2
30	Brahmans, Mysore	12·2
39	Non-Brahmans, Mysore	12·2

The maxima distances, at which the position of the letter was recognised, were :— Shólaga, 18 m.; Paraiyan, 19 m.; Badaga and Dikshitar Brahman 20 m. In all classes, it may be noted, the visual acuity ranged between 12 and 13 metres, *i.e.*, between visual acuity 2·15 and visual acuity 2·03. These classes, or groups of classes, cover a wide range of degrees of civilisation from the wild jungle Shólagas, Urális and Chenchus to the cultured Brahman. And, though the jungle man, who has to search for his food and mark the tracks and traces of wild beasts, undoubtedly possesses a specially-trained keenness of vision for the exigencies of his primitive life, the figures show that, as regards ordinary visual acuity, he has no advantage over the more highly-civilised classes.

An independent tour was made by my assistant, Mr. K. Rangachari, to the Madura and Tanjore districts with a view to obtaining information concerning the Vallambans, Kallans, Valaiyans, Valluvans, Sáliyans, Patnúlkárans and Náttukottai Chettis.

An Edison's phonograph for the first time accompanied us on our expeditions, and we secured valuable records of tribal songs and instrumental music, marriage songs, temple nágasvaram music, védic recitations by Brahmans, etc. It is proposed to send some of the best of the records to Mr. C. S. Myers for the Museum of Comparative Music at Cambridge, and retain duplicates here. The phonograph has proved itself to be an invaluable property as a means of conciliating timid and suspicious folk, who are afraid of anthropometric methods, and no travelling anthropologist should be without it.

Among the additions to the ethnological section of the Museum, the following may be noted :—

Dress made of the leaves of a sedge (thanda) worn by Thanda Pulayan women of the Cochin State. When a girl first assumes this garment, to replace the strip of areca palm worn in childhood, a ceremony called thanda kalyánam or thanda marriage is performed, and a feast held.

Kádir digging stick tipped with iron, apparatus for making fire with flint and steel, and bamboo tube filled with mattupal, *i.e.*, bamboo seeds mixed with honey, which are roasted in the tube coated with a covering of earth, and considered a great delicacy.

A series of bamboo combs worn by the Kádir women of the Anaimalai hills, which shows clearly that the patterns thereon are conventional designs, and not a system of hieroglyphics, such as Dr. Preuss (Globus, 1899) makes out the strikingly similar designs on the bamboo combs worn by the Negritos of Malacca to be.

Bows and arrows used by the Eravalers of Cochin.

Flint and steel, and bows and arrows used by the Chenchus. In a long distance shooting match, the prize was won with a carry of 144 yards. It was noted by Captain Newbold that the Chenchus are not remarkably expert as archers, to judge

from the awkwardness they exhibited in despatching an unfortunate sheep picketed for them at forty yards, which was held out to them as the prize for the best marksman.

Cord drill used by the Badagas for making fire by friction at the annual fire-walking ceremony. This method of obtaining fire is called niligolu or vertical stick. This stick is made of a twig of *Rhodomyrtus tomentosus*, which is rotated in a socket in a long thick piece of a branch of *Debregeasia velutina*, in which a row of sockets has been made. The rotation is produced by a cord passed several times round the vertical stick, of which the two ends are pulled alternately. The horizontal block is pressed firmly on the ground by the toes of a man, who presses a half cocoanut shell on the top of the vertical stick, so as to force it down into the cavity. A Badaga, who failed in an attempt to demonstrate the making of fire by this method, gave as an excuse that he was under worldly pollution, from which he would be free at the time of the fire-walking ceremony.

Three forms of apparatus used by the Kotas in making fire by friction, viz., (1) a vertical and horizontal stick with grooves and sockets, both made of twigs of *Rhodomyrtus tomentosus*. (2) A small piece of the root of *Salix tetrasperma* is spliced into a stick, which is rotated in a socket in a piece of the root of the same tree. (3) A small piece of the root of this tree, made tapering at each end with a knife or fragment of bottle glass, is firmly fixed into the wooden handle of a drill. A shallow cavity and groove are made in a block of the same wood, and a few crystalline particles from the ground are dropped into the cavity. The block is placed on several layers of cotton cloth, on which chips of wood, broken up small by crushing them in the palm of the hand, are piled up round the block in the vicinity of the groove. The handle is, by means of a half cocoanut shell, pressed firmly down, and twisted between the palms, or rotated by means of a cord. The incandescent particles, falling on to the chips, ignite them.

Iron sickles, with imitation buffalo horns on the tip, made by Kotas, which are placed on or by the side of the cot on which a Badaga corpse is laid at the time of the funeral.

Toys made of twigs curved so as to represent buffalo horns, which Toda men and children may often be seen making as they tramp over the downs.

Sacrificial knife from an Amman Koil (temple) in the Madura district, used for cutting off the heads of goats or sheep at a single stroke. The end of the handle represents a Yāli, and at the base of the blade curved figures represent the canine teeth of Kāli.

Amana paliga (tortoise plank) or kurmamasana, the traditional seat of Nambūtiri Brāhmans, made of jāk (*Artocarpus integrifolia*) wood, which represents a tortoise, and is used on ceremonial occasions.

Painted and varnished mimic arrow (charakkol), with barbs of peacock feathers, used at the Nāyar marriage ceremony in Malabar.

A series of painted clay gods, worshipped by fishermen at Gopalpūr in Ganjam. The figures, which are set up in small shrines facing the sea, are worshipped before setting out on fishing expeditions, or when there is danger from epidemic disease. The fisher-folk at first objected to their gods being taken away, but consented when they were told that the Government had heard of their devotion to them, and wanted to possess them. The gods include Bengāli Bābu, who is represented wearing a hat, and riding on a black horse. He blesses the fishermen, secures large hauls of fish for them, and guards them against danger when out fishing. Veyyi Kannalu Ammavāru, or the goddess of a thousand eyes, is represented by a clay pot pierced with holes, in which a gingelly (*Sesamum indicum*) oil light is burnt. She attends to the general welfare of the fishing community.

A rude female figure, life size, scratched in a plank of wood, with Arabic inscriptions drawn on it, which was washed ashore on the Tellicherry beach in Malabar. A still larger and more artistically executed figure was found on the sea-shore at Calicut a few years ago.

Kernels of cocoanuts used in Malabar as tallies. When weighing kopra (dried cocoanut kernels), it is customary to keep the tally by making holes on the outer surface of a kernel with the index needle of the weighing beam. A further form of Malabar tally is represented by a string of cocoanut fibre with knots made in it.

Neolithic cells from the Pulivendla taluk of the Cuddapah district, concerning which the Rev. J. Macnair writes that "palæoliths abound in great numbers in various parts of this district, but up till now I have not heard of neoliths. They are made of what appears to be a close-grained heavy limestone."

A small iron-age pottery vase of unusual design, and iron implement from Echūr in the Conjeeveram taluk of the Chingleput district. There is a local tradition that the place was occupied by the Chōla kings, and that buried treasure is hidden there.

Skull received from Hampi (Vijayanagar) concerning which Mr. A. Rea writes as follows. "I saw a very extensive structural reservoir near the palace, which had a large deposit of earth in its bed. In digging, the sub-divisional officer of the Public Works Department found a vaulted chamber below the floor, and surmised that it was a burial ground, as in it a skull and some bones were found. The remains may either be those of the sacrifice made before the tank was built, or of a drowned person." The skull is small and eminently dolichocephalic (length 16·8 cm. breadth 11·6 cm., index 69). It is apparently that of a man of short stature, and recalls to mind the skulls of jungle Kurumbas (necromancers), which are in my possession.

An imported solid glass bangle, broken into two pieces, from which a venomous insect is reported to have burst forth, and stung a girl on the wrist when it was placed thereon. The insect was not sent with the bangle, but it is said to be small with a dark head, similar to the insect that lives in rice grain. A scare has arisen in connection with this insect, which is said to have taken up its abode in imported German bangles, which compete with the indigenous industry of the Gāzulas (glass-bangle makers).

I was consulted in connection with a case in Malabar, in which a young man, apparently in good health, walked home with two other men after a feast, chewing betel. Arriving at his home he went to sleep, and was found dead next morning. Blood was described as "oozing out of his eyes." It was given out that the cause of death was an insect, which infests betel leaves and is very poisonous. The belief in death from chewing or swallowing the veththilai or vettila poochi (betel insect) is a very general one, and is so strong that, when a person suffers from giddiness after chewing betel, he is afraid that he has partaken of the poisonous insect. Native gentlemen take particular care to examine every betel leaf, wipe it with a cloth and smear chunām (lime) over it before chewing. My assistant has made enquiries concerning the poochi, but no one can tell him what it is like. It is called by Gundert (Malayalam dictionary) vettila pámbu or moorkhan (snake) or vettila thél (scorpion).

5. Archæology and art.—The Director-General of Archæology wrote to the Curator of the Lahore Museum that "in Madras, the Museum authorities are in favour of purely provincial collections being made, and the Græco-Indian sculptures have accordingly been relegated to dark cellars, where they are appreciated by no one. It might be useful, therefore, to address Mr. Thurston, with a view to recovering them for the Lahore Museum." The sculptures referred to were excavated at Yusofzai in the Punjáb, and received from Major Cole in 1885. They have, as desired, been forwarded to the Lahore Museum with the exception of a few typical plaques, which have been retained for comparison with the later sculptures at the Amarāvati stupa in the Kistna district (South India).

The splendid collection of bronzes, iron weapons and implements, pottery and human bones, excavated under the direction of Mr. A. Rea, Superintendent of the Archæological Survey, at Aditanallūr in the Tinnevelly district, has been arranged in the new gallery built for its reception. Concerning the Aditanallūr "prehistoric" burial site, M. Lapicque writes as follows (Bull Muséum d'Histoire naturelle, 1905) "Avec une autorisation spéciale de l'administration anglais, j'allai pratiquer quelques journées de fouilles dans le gisement réservé d'Adichanallour. J'ai rapporté un specimen des urnes funéraires, avec une collection assez complète du mobilier funéraire. J'ái rapporté aussi un crâne en assez bon état et parfaitement déterminable. It est

hyperdolichocéphale, et s'accorde avec la série que le service d'archéologie de Madras a déjà réunie. Je pense que la race d'Adichanallour appartient aux Proto-Dravidiens." The measurements of six of the most perfect skulls from Aditanallur in the Museum collection give the following results:—

Cephalic length, cm.	Cephalic breadth, cm.	Cephalic index.
18·8	12·4	66
19·1	12·7	66·5
18·3	12·4	67·8
18	12·2	67·8
18	12·8	71·1
16·8	13·1	78

Two of the skulls are conspicuously prognathous—a character which appears in a few Tamil and Telugu skulls in the Museum collection.

The following extract from my notes shows that the hyperdolichocephalic type survives in the dolichocephalic inhabitants of the Tamil country at the present day:—

Class.	Number examined.	Cephalic index below 70.
Palli	40	64·4; 66·9; 67; 68·2; 68·9; 69·6.
Paraiyan	40	64·8; 69·2; 69·3; 69·5.
Vellāla	40	67·9; 69·6.

A series of seventeen seals and a charm, which were purchased by Government in 1859 at a sale of the effects of the Carnatic family, were transferred to the Museum, together with impressions from the seals with English translations, of which the following are examples:—

Shahāmat Jang, the first sovereign, 1157 (= A.D. 1744–45).
Wālā-Jāh, the second sovereign, 1163 (= A.D. 1749–50).

Unalterable seal of the Sircar (Government) of Nawāb Muhammad Gaus Khān Bahādur, the prop of kingdoms, Sovereign of the Carnatic, 1258 (= A.D. 1842–43).

The Honorable of the lords of high dignity chosen from the chiefs of great magnitude; councillor of the affairs of people; master of sword and pen; Amīr-ul-Hind Wālā-Jāh; Umdat-u-Umrā; Madar-ul-Mamālik; Muktār-ul-mulk 'Azim-ud-daula Nawāb Muhammad Gaus Khān Bahādur Shahāmat Jang, the Commander-in-Chief and Sūbadar of the country of the Carnatic, 1258.

In connection with the scheme for the preparation of pattern books of design, referred to in my last report, the entertainment of two draftsmen for a year with effect from 1st October 1905, to work under the supervision of Mr. M. Velayudasari, Assistant Superintendent of the School of Arts, and controlled by myself, was sanctioned. The draftsmen who were selected to carry out their work have been engaged in making detailed working drawings of various articles in wood and metal preserved at the Museum, and have done their work to my entire satisfaction. Mr. Velayudasari was deputed to attend a Conference at Calcutta, whereat the subject of pattern books was discussed by representatives of the leading Schools of Art.

At Tanjore the manufacture of metal swāmi (Hindu deity) work, in the shape of trays, jars, etc., made of copper heavily encrusted with silver, is carried out on an extensive scale at the present day. This industry is a modern adaptation of an older art, and the demand for the wares is almost entirely European. The Museum secured a few examples of the older type of Tanjore metal ware, on which the modern industry is based.

The metal-workers of Kurumbalūr in the Trichinopoly district received, at the request of Her Royal Highness the Princess of Wales, an order for specimens of vases made of brass inlaid with zinc. This little local industry is very little known, and is worthy of encouragement.

A series was exhibited, illustrating, in its various stages, the wax and block-printing industries of Kumbakónam, Masulipatam, and Narsapúr, which were further illustrated by pictures from Rouffaer's 'Indische Batik-kunst und ihre geschichte.'

A clay model of the churning of the sea of milk, made at Kondapalle in the Kistna district, was acquired at the Fine Arts Exhibition. It represents the demons and celestial dēvatās holding the serpent Vasuki, which is wound round the mountain churning staff, with Vishnu in the form of a tortoise as its pivot.

Extensive additions were made, by purchase under the Treasure Trove Act, and through the medium of native agents who were engaged in hunting up specimens in the local bazaars, to the art metalware collection, which has developed into one of very considerable value.

A series of carved wooden panels from an old temple car at Rāmēsvaram, forwarded by Mr. A. Rea, was utilized for the decoration of the passage outside the Superintendent's office.

6. NATURAL HISTORY.—In connection with a scheme for the establishment of an aquarium on the sea-shore, which has been worked out in detail, I may appropriately quote the words of Government (G.O , No. 64, Educational, dated 6th February 1906). "His Excellency the Governor in Council has had under consideration the establishment on the Marina of the City of Madras of a Marine Aquarium, not only for educational and scientific purposes as an extension of the museum and an annexe to the Presidency College, but as an exhibition open to the public, which His Excellency is confident will prove to be both popular and attractive. Its construction will now be approved and sanctioned. The site selected for it is on the foreshore opposite the Presidency College. The aquarium will be placed under the control of the Superintendent of the Government Museum as Director, and of a committee composed of the following gentlemen :—The Hon'ble Mr. A. G. Bourne, Mr. J. R. Henderson, Mr. P. F. Fyson, Mr. K. Ramunni Menon and Major W. Molesworth, I.M.S. The committee will be assisted in the work of the aquarium by the Demonstrator of Zoology at the Presidency College, and, if he will give his services, by the Demonstrator for the time being at the Christian College." Detailed proposals regarding the establishment, etc., to be maintained in connection with the aquarium were, after consultation with the committee, submitted to Government. The plan provides for ten tanks for marine animals, a central pond and small tanks for fresh-water animals, and a large pond for sharks and dog-fishes.

A very interesting dry Molluscan and spirit collection of Cœlenterata, Echinodermata, Mollusca, and Chordata, illustrating the littoral marine fauna of Madras, the investigation of which is being systematically carried out by Mr. K. Ramunni Menon of the Presidency College, was forwarded by him for conservation at the museum.

To Mr. Edgar A. Smith of the British Museum, Natural History, the museum was indebted for the return of a small named collection illustrating the shallow-water molluscan fauna of Malabar and South Canara, which was sent to him for favour of identification.

To the collection of marine mammalia were added the skull, lower jaw and baleen of a fin-whale (*Balænoptera*), which was cast ashore near Covelong, south of Madras, and the skull and lower jaw of a whale (*Balænoptera ?*) which was stranded on the beach at Shiroor in the Coondapoor taluk of South Canara.

A skin of *Paradoxurus jerdoni*, the brown palm-civet (kat nai or forest dog) from the Salem district, was received from Mr. R. E. Haffield, who informs me that it is a vegetarian. Its habits are stated by Blanford (Fauna of British India) to be unknown.

Albino bandicoot rats (*Nesocia bandicota*) were received from the medical officer in charge of the destruction of rats in connection with plague-prevention measures.

The museum taxidermist was deputed to accompany Mr. R. Foulkes on a shooting expedition in Salem, Coimbatore, Malabar and South Canara, with a view to adding to the collection of birds.

To Captain F. D. S. Fayrer, I.M.S., the museum was indebted for a large number of birds illustrating the avi-fauna of the City of Madras.

To the collection of live animals, the following additions were made :—

Indian Gazelle (*Gazella bennetti*).
Madras Langur (*Semnopithecus priamus*).
Bonnet Monkey (*Macacus sinicus*).
White rats, illustrating albinism.
Small Indian Civet (*Viverricula malaccensis*).
Southern Grackle (*Eulabes religiosa*).
Nicobar Pigeons (*Calœnas nicobarica.*)

7. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 16,839 against 17,278 in 1904-1905—

Largest number of readers in a day	..	..	165
Smallest " "	..	..	*3
Largest " on Sunday	..	..	155
Smallest " "	..	..	19

The number of standard works added to the library was 410, of which 359 were acquired by purchase and 51 presented. A very interesting acquisition was a bound volume, containing the original water-colour paintings of orchids by Mrs. Jerdon, wife of the Indian naturalist T. C. Jerdon.

As usual I append, as a general indication of the class of literature resorted to by readers, a list of books issued during the last two years under various subject catalogue heads :—

	1904-1905.	1905-1906.
Anatomy; biology; natural history; zoology	1,022	1,061
Anthropology; folklore	653	594
Archæology; architecture	353	311
Arts; industries	823	1,307
Atlases; maps	80	82
Belles lettres	1,620	1,714
Botany; arboriculture; horticulture	281	342
Chemistry; agriculture; photography	659	424
Classics	262	171
Dictionaries; encyclopædias; gazetteers; manuals ..	4,178	4,209
Economic products	153	98
Education; ethics; logic; metaphysics; philosophy; political economy	1,515	1,613
Exhibitions	73	67
Forestry; timbers	77	29
Geography; physical geography; physiography	115	90
Geology; palæontology	102	217
History	2,142	2,189
Jurisprudence	512	466
Medicine; surgery; pathology	456	348
Microscopy	63	51
Mineralogy; metallurgy	54	91
Natural philosophy	627	618
Numismatics; medals; heraldry	79	94
Philology; epigraphy	236	303
Photographs	101	26
Physiology	412	176
Public health	274	127
Religion	655	924
Sports and games	392	375
Travels; voyages	312	726
Fort St. George Gazette (other than current issues) ..	1,009	1,222
Vernacular languages	271	133

The scheme submitted by the Syndicate of the University of Madras in 1904 for the establishment of a University Library in connection with the Connemara Public Library was approved by Government, subject to certain modifications proposed by myself, in G.O., No. 361, Educational, dated 26th May 1905. An estimate for constructing additional book-cases, etc., to accommodate the proposed University Library, was sanctioned in G.O., No. 2530 W., dated 26th December 1905.

8. VALUABLE STOCK.—The necessary inventory was maintained and duly checked.

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* The day on which Their Royal Highnesses the Prince and Princess of Wales arrived in Madras.

APPENDIX A.

DONATIONS, 1905–1906.

Asiatic Society of Bengal—

Silver coin, Shāhjāhānabad, of Ahmad Shāh found in the district of Mean Wali.
Two silver coins of Mahmud Shāh Durrani found in the district of Jhang.
Eight silver coins of Aurangzīb, Shāh Alam Bahādur, Jahāndār, Farrukhsiyar, Ahmad Shāh Bahādur, Muhammad Shāh and Zamān Shāh found in the Jhelum district.
Silver coin of Aurangzīb found in the Lahore district.
Five rupees of Shāh Alam found in the Dinajpur district.
Nine rupees of the French Company struck in the names of Ahmad Shāh, Alamgīr and Shāh Alām found in the Rungpur district.
Five coins found in the Murshidabad district.
Heavy rupee of Jehangir found in the Sialkot district.
Twenty-one silver coins found in the Manbhum district.
Five Indo-Sassanian coins found in the Jubbulpur district.
Eleven silver coins of the Assam Kings, Muhammad Shāh, and French E. I. Co. imitation Mughal found in the Sibsagur district.
Four silver coins found in the Shahpur district.
Three rupees of Ahmad Shāh.
Two Ujjain rupees of Shāh Alam.
Six rupees of Indore.
A coin found in the Midnapur district.

Barnes, Mr. E.—

Squirrel.

Bellary division, Executive Engineer—

Skull and bones discovered beneath the floor of a reservoir at Hampi.
Iron lamp of the dwajastambha in front of Vitalaswami temple at Hampi.

Cuddapah, District Forest Officer—

Timber of *Holarrhena antidysenterica.*

Demas State, Durbar—

Silver coins.

Duffus, Mr. G.—

Nicobar pigeons, alive (*Caloenas nicobarica*).

Fayrer, Captain F. D. S.—

A collection of birds from Madras.

Canara, South, Collector—

Skull and lower jaw bones of a whale.

Canara, South, District Forest Officer—

Resin of *Stereospermum xylocarpum*, *Hopea parviflora* and *Macaranga indica.*

Coimbatore, North, District Forest Officer—

Tendrils, bark, bark extracted from the root, and fibre of *Ventilago calyculata.*
Fruits of *Celtis australis* and *Gmelina arborea.*
Timber and bark of *Flacourtia Ramontchi.*
Bark and fruit of *Cæsalpinia sepiaria.*

Coimbatore, South, District Forest Officer—

Timber, leaves and oleo-resin of *Mesua ferrea.*

Corporation, Madras—

Hyæna (*Hyæna striata*).
Leopard (*Felis pardus*).
Crocodile (*Crocodilus palustris*).
Crowned pigeon.

Ghulam Muhammad Sahib—

Duck's egg (abnormal).

Government Epigraphist—

Inscribed slab from the Gopālkrishna temple at Malepadu in the Proddatur taluk, Cuddapah district.
Inscribed pillar lying near a well west of the same village.
Two pillars with ancient characters inscribed on them.
Inscribed slab set up in a field by the side of the road from Chilamakuru to Muddanur.
Inscribed Pāndyan stone from Tirukkurungudi, Tinnevelly district.

Haffield, Mr. R. E.—
A collection of snakes, phasmid (stick insect), and brown palm civet (forest dog) *Paradoxurus Jerdoni.*

Hoare, Mr. W. E.—
Snake, *Gongylophis conicus* (*alive*), mottled wood-owl (*Syrnium ocellatum*).

Jones, Mr. E.—
Indian palm civet (*Paradoxurus niger*).

Justice, Captain *W. A.*—
Albino bandicoot (*Nesocia bandicota*).

Kirwan, Mr. L. E.—
Paper-wasp's nest.

Krishnasami Rao, Mr. M. V.—
Live rose-ringed paroquet (*Palæornis torquatus*).

Kudligi, Range officer—
Timber of *Terminalia Arjuna.*

Mac Gregor, Lieutenant R. D.—
Snake (*Oligodon ellioti*).

MacIver, Mr. J.—
Plank with female figure washed ashore at Tellicherry.

Mainwaring, Mr. E.—
Skull of wolf (*Canis lupus*).

Morgan, Mr. J. G.—
Stone shot from Covelong fort.

Morrison, Mr. C.—
Two gold coins.
Two silver coins of Ma'bar (Muhammadan Viceroys).
Copper coin.

Oakes, Captain G. R.—
Earthsnake (*Platyplectrurus madurensis*).

Polur, Range officer—
Seeds of *Cassia sophora.*

Pudukkóttai, Diwan—
Boomerangs (valai tadi).

Ramunni Menon, Mr. K.—
Series of specimens illustrating marine fauna of Madras.

Rangachari, Mr. T. K.—
Collection of Indo-Danish coins.

Rea, Mr. A.—
Wooden panels of an old car at Rámésvaram.
Earthen articles from the Chingleput, Cuddapah and Tinnevelly districts.
Stone ruler, mortar and pestle (marble) from Tadpatri.
Pebbles from Palladam, Coimbatore district; stone slabes from Udipi, South Canara district.
Inkstands, Anjaneya, soapstone vessels, Nandi and lingam from Harpanahalli, Bellary district.
Soap and black stone chess pieces from Vinukonda, Guntúr district.
Soulptures from Danavulapadu, Cuddapah district.

Rencontre, Mrs. E.—
Black scorpion.

Royal Asiatic Society (Bombay Branch)—
Three gold coins of Pratáp Deva Raya, Vijayanagar dynasty.
Silver and square gold coin, and round gold mohur of Akbar.
Gold coin of Muradbin Salim II, Ottoman Sultan, A. H. 982, found in Ahmedabad district.
Silver coins of Shāh Jahān, Aurangzíb, Jehandar, Farrukhsiyar, Muhammad Shāh and Shāh Alam found in Ahmadnagar district.

Saldhana, Mr. R. W.—
Wooden images of gods from Gopalpur, Ganjám district.

Salem, North, District Forest-officer—
Timber of *Dolichandrone falcata*

Salem, South, District Forest-officer—
Gum of *Hardwickia binata* and *Prosopis spicigera.*

Santiang, Mr. L.—

Double egg of domestic fowl.

Sivasubramania Pillai, Mr. R.—

Photograph of palmyra tree with fourteen branches.

Strange, Mr. A. B.—

Bull frogs (*Rana tigrina*).

Tanjore, District Magistrate—

Colt's revolver.

Tottenham, Mr. L.—

Mimic bow used at Nayar weddings.
Amana paliga.
Elephant goad.
Lamp.

United Provinces, Government—

Fifteen Oudh and Benares rupees.
Copper coin found in Mawza Bhitaura, Fyzabad district.
Twenty-four coins found in Durgapur, Bara Banki district.
Ten silver coins found at Kanwara.
Two silver Moghul coins found at Nehtaur.
Silver coin from Bareilly district.
Three Pathán coins, and a copper coin from Bara Banki district.
Four silver coins from Farrukhabad district.
Seven silver coins from Babraich district.
Silver coin found in the Azamgarh district.
Three copper coins found in the Banda district.
Four Moghul rupees found in Agra district.
Sixteen silver Moghul coins found at Harkhanti in the Jalaun district.
Eight Moghul rupees found in the Fyzabad district.
Three Moghul rupees found at Partabgarh district.

Vernon, Mr. H. A. B.—

Live Monkey, juv. (*Macacus sinicus*).

Vincent, Mr. R.—

Kādir combs.

Whittaker, Mr. J.—

Altered amphibolite with a considerable quantity of felspar, which is largely orthoclase.

APPENDIX B.

CLASSIFIED list of expenditure of the Government Museum during the year 1905–1906.

	Actuals, 1905–1906.	Revised estimate, 1905–1906.
	RS.	RS.
Salaries—		
Superintendent	9,600	9,600
Exchange compensation allowance	600	600
Local allowance	2,400	2,400
Total ..	12,600	12,600
Permanent establishment, Government Museum—		
Herbarium keeper, first assistant, second assistant, senior and second taxidermists, writer, assistant writer and 26 peons—33 persons	6,959	..
Permanent non-pensionable establishment, Government Museum—		
Three gardeners, three sweepers, six watchmen, water-pandal Brahman, latrine sweeper, punkah-puller and chokra—16 persons	1,122	..
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons—6 persons	2,670	..
Permanent non-pensionable establishment, Connemara Public Library—		
Servant (sweeper)—1 person	47	..
Total, Establishment ..	10,798	10,800
Allowance—		
Travelling allowance	1,151	1,400
Supplies and services—		
Specimens purchased on tour	828	..
Objects of interest and coin purchased at head-quarters.	1,117	..
Fittings, furniture, etc., for the collections	1,833	..
Books and publications	850	..
Library	2,074	..
Lithographic plates	424	..
Ammunition	15	..
Charges for feeding live animals	216	..
Expenses—		
Reading coins	3	..
Total, Supplies and services ..	7,360	5,300
Contingencies—		
Purchase of furniture (Europe stores)	47	..
Tour charges	218	..
Landing and shipping charges	25	..
Repairs to furniture	97	..
Cleaning charges	27	..
Postage ,, ...	200	..
Telegraph ,, ...	10	..
Telephone ,, ...	185	..
Rents, rates and taxes	3,843	..
Office expenses including such articles as gum-pots, rat-traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vinegar, water-pots, ropes and match boxes	601	..
Photographs for monograph on carpet making ..	102	..
Total, Contingencies ..	5,355	5,900
Grand Total ..	37,264	36,000

Order—No. 482, Educational, dated 16th July 1906.

Recorded.

2. The Government have perused with pleasure the interesting report submitted by Mr. Thurston. Their thanks are due to all those who made donations to the Museum.

(True Extract.)

H. D. TAYLOR,
Ag. Secretary to Government.

MADRAS: PRINTED BY THE SUPERINTENDENT GOVERNMENT PRESS.

Government of Madras.

EDUCATIONAL DEPARTMENT.

Recd. } 1907. *Enclosures*

Regd. } *Spare copies*

G.O., No. 464, 19th July 1907.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

Government Museum and the Connemara Library.

Recording, with remark, the report on the working of — during the year 1906–1907.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

Read—the following paper :—

Letter—from E. Thurston, Esq., Superintendent, Government Museum.
To—the Secretary to Government, Educational Department.
Dated—Madras, the 7th July 1907.
No.—421.

I have the honour to forward, for submission to His Excellency the Governor in Council, the report on the working of the Government Museum and Connemara Public Library during 1906–1907 and to request that I may be supplied with 160 copies for distribution to other Museums, etc.

Enclosure.

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM FOR THE YEAR 1906–1907.

Visitors.—The total numbers of visitors to the old and new buildings were 334,493 and 301,207 against 390,190 and 351,683 in 1905–1906. The largest number of visitors on a single day was 29,775 to the old and 27,138 to the new building at the feast of Pongal. The total numbers of visitors on Sundays were 60,553 to the old, and 52,443 to the new building. The number of gosha females who visited the Museum on the monthly Saturdays set apart for them was 10,806.

The Museum was visited by Their Excellencies the Governor of Madras and the Governor-General of French India. Special arrangements were made for a visit by the ladies of the family of the Raja of Pittapur.

2. Buildings.—An annexe to the existing marine gallery, and a new room for the exhibition of the prehistoric collection acquired from Mr. R. Bruce Foote were in course of construction. The Consulting Architect has been requested to prepare plans and estimates for annexes to the sculpture and economic galleries and a new clerk's office. The zinc roof of the theatre, which was in parts riddled with holes owing to some obscure chemical action, was replaced by a roof of corrugated iron.

3. Theatre.—The theatre was used on fourteen occasions during the year as follows :—

Amateur dramatic entertainments	7
Collegiate School prize distribution and entertainment	2
Presidency Training School for Mistresses prize distribution	1
Madras Musical Association concert	1
Caledonian Society Burns concert	1
Teacher's Guild Conference	2

4. Historical.—The marble statue of Lord Cornwallis, which has suffered from long exposure to the open air in Fort St. George, was transferred to the Connemara Library, where it has been set up. Charles, first Marquis and second Earl Cornwallis, was born in 1738. In the American war of independence, he was obliged to capitulate at York Town, where the English force was surrounded and outnumbered by Washington. In 1782, when Cornwallis was still a prisoner on parole, he was asked to go to India as Governor-General and Commander-in-Chief, but refused the offer. He finally accepted the dual appointment in 1786. In 1792 he commanded at the siege of Seringapatam, which forced the surrender of Tippoo Sultan, who surrendered two of his sons as hostages, as a sign of his willingness to make peace. The reception of the two lads by Cornwallis is represented in the bas-relief of the statue. A treaty of peace was signed, by which Tippoo agreed to cede about half of his territories, as well as to pay a sum of £3,600,000. After his return to Calcutta,

Cornwallis occupied himself with various reforms, the most important of which was the promulgation of the Permanent Settlement of Bengal in 1793. In the same year he handed over the government to Sir John Shore and sailed for Madras in order to take command of the expedition against Pondicherry, which, however, had surrendered before he reached Madras. In 1805, at the age of sixty-six, he again went to India as Governor-General and Commander-in-Chief, in succession to the Marquess Wellesley. He landed there with the express intention of making peace with Scindia and Holkar, and started up the Ganges. Becoming, however, seriously ill, he was landed at Ghazipur, where he died on 5th October, 1805. The statue, by Thomas Banks, represents him in the robes of a Peer over military uniform. The sanction of Government has been obtained for the transfer to the Museum of the guns which were placed round the Cornwallis statue in the parade-ground of Fort St. George.

A number of original Persian documents from Thomas Saunders, Charles Bourchier, and George Pigot, Governors of Madras, Lord Clive, Sir Eyre Coote, Major Lawrence, and others were offered by His Highness the Rāja of Pudukkottai to the Government of India for the Victoria Memorial Hall, Calcutta. Of these documents, eighteen have been retained in Calcutta, and the remaining twenty-four have been forwarded to me for preservation in the Connemara Public Library. These consist of documents from Lord Clive, Lord Macartney and Pigot (as George Pigot, Esq., and Lord Pigot), Governors of Madras, Mr. Charles Smith, provisional Governor of Madras, Colonels Stuart, Brown, Fullerton, and Pears, Major Lawrence, and Lieutenants Clive and Smith. It may be recalled, as a matter of history, that Lord Pigot was arrested and conveyed to St. Thomas' Mount, when Governor of Madras, by order of the Members of Council.

A series of old coloured engravings, illustrating the uniforms of the Governor's Body-guard, Madras Horse Artillery, 32nd Regiment, Madras Infantry, and Madras Infantry band-master and musician, was acquired. A native sword, with V.O.C. (Vereinigte Ostindische Compagnie), 1760, engraved on the blade, was also acquired, as a relic of the Dutch East India Company. An excellent, and apparently accurate water-colour painting, in several sections, of Fort St. George and its environs about 1820, was mounted as a panorama at the College of Engineering, and exhibited in the Connemara Library. To Colonel H. D. Love, R.E., I am much indebted for the interest which he took in the preparation of this exhibit.

5. ANTHROPOLOGY.—My book entitled 'Ethnographic Notes in Southern India' was issued in July 1906, and the edition was nearly exhausted at the end of the year. I was, throughout the year, mainly occupied in writing the book on 'Castes and Tribes of Southern India', which will be issued in connection with the Ethnographic Survey. Many of the long articles were sent to the Government Press, and set up in type, but much still remains to be done before the book is ready for publication. A Bulletin, containing an account of the Tamil Paraiyans and the legend of Nandan by the Rev. A. C. Clayton, and a note on some agricultural ceremonies by Mr. C. Karunakara Menon was issued. A further Bulletin, containing an account of the worship of village deities (grāma dēvata) of the Southern India by the Bishop of Madras was going through the press.

A tour was made by myself in the Mysore Province, in the course of which anthropometric data relating to various Canarese castes were recorded. Mr. K. Rangachari paid a long visit to the Ganjam district, with a view to securing information concerning various Oriya castes inhabitants of the plains, about which very little information has been previously recorded.

In my last report I referred to a case in Malabar, in which death was said to have resulted from eating a vettila poochi (betel insect), when chewing betel. In connection with this mysterious animal, Mr. H. Latham sent me from South Canara a description of a planarian worm. His camp-boy told him of a case in which death is said to have followed as the result of eating one of these animals cooked with jāk fruit. The skin of land planarians is undoubtedly 'full of minute rods or rhabdites, which are shot out in great numbers when these animals are irritated, and doubtless serve an offensive purpose.' But it is not proved that a cooked planarian can cause death. A perichæte earth worm was forwarded from Malabar, with a note that, when it is accidentally chewed, the chief symptom is drawing in of the tongue, and consequent death from suffocation. The antidote is to drink salt and water, and the juice

of the leaves of the guava tree. It is recorded, in the Kērala Chintamani, that the betel snake "is a poisonous creature, which lives adhering to the betel leaf. Its presence cannot be easily detected, and many deaths occur among persons who are in the habit of carelessly chewing betel. The poison passes into the system through the moisture of the mouth, and death ensues within an hour and a half. Treatment: administer internally the juice of the leaves of a tree called arippēra. Make the patient suck the milk of the breast of a woman, whose baby is more than eighty days old."

A British Chaplain in Madras recently dismissed a servant for cheating and lying. A short time afterwards he found nailed to a teapoy a paper scroll containing a jasmine flower, tied up with coloured threads. On the scroll were inscribed in Tamil the mystic syllable Ōm, and Nāma Siva R. U. Masthān Sāhibu Avergal pādama thunai, or "I seek for help at the feet of Masthān Sāhib" (a Muhammadan saint).

Among the additions to the ethnological section of the Museum, the following may be noted:—

A series of twenty-two clay figures of gods and goddesses, made by a potter in the Tanjore district, for an Aiyanar temple. Aiyanar is represented seated between his two wives, and, among other goddesses, are Mariamman, Kaliamman, Karuppai, Alathikari, and Pechiamman. The god Vīrabhadra is represented with eight arms, holding a long stick, spear, club, and hour-glass shaped hand-drum. Mathurai-vīran, who keeps watch over the village boundaries at night, is figured riding on a horse. The figures also include Sanyasi (an ascetic), the elephant god Vigneswara or Ganēsa, and Anjuthalai nāgam, the five-headed cobra.

Mr. N. Annandale has described(Asiat. Soc. Bengal, Miscellanea Ethnographica, 1, 1906) a type of blow-gun obtained by him in the Madura district. "The ornamentation," he writes, "of the weapon is characteristic, and shows that it must have been made in North Borneo. According to my Labbai (Muhammadan boatman) informants, the 'guns' are purchased by them in Singapore from Bugis traders and brought to India." Another type of blow-gun has been sent to me from the Madura district, consisting of a metal tube like a billiard-cue case, about 5′ 4″ in length, black japanned, and with unornamented brass rings and finials.

A series of articles from Malabar presented by Mr. A. K. L. Tottenham, which included—(*a*) para measure, box (cheppu), metal mirror (val kannadi), etc., used during Nāyar marriages; (*b*) an hour-glass shaped drum used by Pānān sorcerers at certain ceremonies; (*c*) vengida koda, or prosperity umbrella, carried before the goddess at pūram festivals, and consisting of red, green, orange, black and white cotton fabrics supported on a long bamboo pole; (*d*) a stringed musical instrument called nandurini, played by Kāllata-kurups; (*e*) temple drum, called edakku, decorated with tassels.

Miniature bow and arrows, used by various castes in playing a game in Malabar.

Musical instrument played by Mādig 'sādis, and pot, bearing representations of the feet of deity, carried by Mādiga Mātangi women. These were secured when a Madiga buffalo sacrifice was specially performed for me in the Mysore Province. The right foot of the decapitated animal was cut off and placed crosswise in its mouth in the manner described by Bishop Whitehead, and an earthen lamp, and some of the omentum removed through an incision with a knife in the abdominal wall, were placed on the top of its head. The Asādis went away abusing the other Mādigas, because, as it was a special entertainment for my benefit, and not a genuine religious ceremonial, they would not give them the carcases as their perquisite.

Hindu and Christian tālis (marriage badges), both of which were worn by a Christian convert. The former bears the sign of the cross, and the latter phallic emblems, which are scarcely recognisable in their changed form into an artisic design.

Carved wooden kāvadis, which are carried by pilgrims to the shrine of the god Subrahmanya at Palni, to whom the kāvadi and money collected by begging on the way thither are offered in performance of a vow. Sometimes pots containing fish and milk are attached to the kāvadi, and it is believed that, as they are votive offerings, these do not go bad.

Silver charms made by Akasāles (goldsmiths) for members of various castes in the Mysore Province. Kurubas, and members of some other castes, keep in their houses silver or gold plates, whereon human figures are stamped. Sometimes they are worn by women, and are called in consequence hithārada tāli. The figures are supposed to represent persons who have died. Sometimes, similar plates are stamped with figures of Hanumān, Basava, Vīrabhadra, etc., and worshipped.

Mr. R. Bruce Foote was engaged in the selection of specimens from the pre-historic collection for the illustration of his catalogue raisonné thereof.

6. Archæology, Art.—I received, from the Archæological Survey department, a large number of articles collected by Mr. A. Rea in the course of his tours at Amarāvati, in the Guntūr district, and Perambair in the Chingleput district, viz.:—

Amarāvati.—Celts, hammer-stones, grinding-stones, sandal-stones, pottery, beads, iron implements, etc.

Perambair.—Pottery, cists, chank-shell ornaments, human bones, iron implements, and a stone figure of Ganēsa.

Mr. Rea made renewed excavations at Amarāvati, from which place the celebrated Elliot marbles were obtained, and set apart a number of sculptures for consignment hereafter to the Madras Museum. A very interesting series of Jain sculptures was also sent by Mr. Rea from Danavulapadu in the Cuddapah district.

Specimens of iron-age pottery from Echur in the Chingleput district were received from the Rev. J. H. Maclean; pottery vases from Tumuli near the Tirukkoyilur railway station, South Arcot, from the Hon'ble Sir R. S. Benson; and pottery vessels from Mettupalaiyam in the Coimbatore district from Mr. E. W. Stoney, C.I.E.

Some fragments of pottery and human bones from the Cumbum and Markapur taluks of the Kurnool district were presented by Mr. T. E. Moir. These were found in connection with stone circles, which he describes as being often formed by boulders of milk-white quartz, which must, in some cases, have been brought from quite a long distance. Some of the circles enclose stone structures, which are oblong, made of slabs of slate rock set upright, with a slab roof. In connection with these dolmens, I may note, *en passant*, that there is a belief that the dolmens on the Nilgiris were constructed by a race of pygmies, assisted by hares and porcupines.

A stone, bearing the legend Sēturāmanāther, was received from the Executive Engineer, Negapatam division, Tanjore. Two stones bearing ancient Pāndyan inscriptions, which were built into the floor of the Erichcha Udaiyar temple at Ambāsamudram in the Tinnevelly district, were received from Mr. V. Venkayya, Government Epigraphist, who also forwarded eight sets of copper plate grants from Nellore.

Under the Treasure Trove Act, a number of metal idols were acquired from the Tanjore and South Arcot districts. Some interesting metal figures of various village deities, and a metal figure of the boar (Varaha) avatar of Vishnu were obtained by purchase from my collecting agents. As in the previous year, very extensive additions were made to the art metal-ware collection. A cocoanut, excellently carved with a burlesque representation of the results of illicit distillation of liquor, was acquired.

7. Numismatics.—In my last annual report, I recorded that a theft of silver filigree-ware occurred, and there was grave reason to believe that the theft was committed by some member of my staff, but no definite proof was forthcoming. It is with deep regret that I have to place on record a serious burglary, and the abstraction of a large number of coins, mostly gold, very many of which possessed great historic interest, and cannot be replaced. The burglary was rendered possible by the erection, without my knowledge, of a bamboo staircase for the work-people engaged in the construction of the annexe to the marine gallery. This rendered access to the upper storey of the museum old building, on which the room containing the coin-cases is situated, possible at night. The most severe loss is that of a large number of the splendid series of Roman Imperial solidi and denarii, which has gradually been brought together under the Treasure Trove Act or by purchase. The coins from the time of Claudius to that of Commodus, including those of Nero, Domitian, Hadrian, etc., have disappeared almost *in toto*, and the series is hopelessly crippled, though the coins of the earlier and later emperors remain. Other series, from which coins have been

removed, include the English East India Company, Moghul Emperors, Patān Kings of Delhi, Kalachuris of Mahākosala, Travancore, and Venetian sequins. The burglars are at large, and none of the coins have been recovered.

The following coins were acquired under the Treasure Trove Act:—

Five gold and seventeen silver coins of the Patān Sultāns of Delhi, from Parlákimedi in Ganjám;

Six gold pagodas of the Vijayanagar dynasty, from Sirigeri in the Bellary district;

Thirteen gold fanams of the Moghul Emperors Muhammad Sháh, Ahmad Sháh, and Álamgir, from the Pullampet taluk, Cuddapah district.

The Museum was indebted to Mr. Lionel Vibert for two Venetian sequins (Aloy Mocen and Franc Laured), and to Mr. A. Vieyra for the new eight cash or half chuckram of Travancore. A large number of lead Andhra coins were sent by Mr. A. Rea of the Archæological Survey, from which a series of various types has been selected, to replace in some measure the coins which were reduced to powder by chemical action a few years ago (*vide* Annual Report, 1904–1905). A copper token, in imitation of the silver half and quarter pagoda of the East India Company, bearing on one side a mantapam, and on the other a figure of Vishnu, was acquired.

As I am repeatedly consulted in connection with the literature bearing on South Indian numismatics, I publish, in Appendix B, a bibliography of the coinage of South India and Ceylon. The publications therein referred to are all available for reference in the Connemara Library.

8. GEOLOGY AND MINERALOGY.—Some years ago, a collection of cretaceous fossils, made by Dr. H. Warth in the Trichinopoly district, was sent to Professer Waagen at Vienna to be worked out. An account of the Cephalopoda has been published by Dr. Franz Kossmat (Untersuchungen über die Südindische Kreide-formation), and the majority of the specimens were returned to the Museum in 1898. In the year under review, I received back from Dr. Kossmat the few remaining Cephalopoda (including the Belemnites), and the greater portion of the Gastropoda, Lamellibranchs, Brachiopods, Echinoderms, and Sharks' whorls.

To Messrs. Best & Co. of Madras, the Museum was indebted for a large series of cores from borings made with a view to discovering coal in the Godávari and Chingleput districts. The boring in the former district was made at the village of Bedadavolu (Bedadanaru) in the Polavaram taluk, 38 miles north-west of Rajahmundry. The borings in the Chingleput district were undertaken at the villages of Vengathur and Periyakuppamare in the Tiruvallur taluk, about 16 miles from Arkónam. A book containing a carefully maintained record of the borings was sent on loan to the Director, Geological Survey of India.

Among the additions to the mineral gallery may be noted:—

(*a*) A small collection of cretaceous fossils, including a portion of a very large Ammonite, from the Trichinopoly district, and a representative series of rocks and minerals from the Nellore mica mines, presented by Mr. W. E. Hoare.

(*b*) Manganese ores from the Sandūr State, and Dodgani in Mysore. The specimens from the former locality include the mineral manganite, which, Mr. L. L. Fermor writes (Manganese in India, 1906), "crystallises in orthorhombic prisms sometimes elongated to needle-like crystals as in the only undoubted occurrence of this mineral in India, namely a nodule obtained from the Sandūr hills."

(*c*) Corundum from Kadirur in the Kottayam taluk, Malabár.

(*d*) Sandstone conglomerate from Sathiavedu in the Chingleput district. It is from this locality that the beautiful sandstone, now being used for the Victoria Memorial Hall, is obtained.

(*e*) A small fragment of rock from an isolated hill near Racherla, about 8 miles north of Giddalur in the Cumbum taluk, Kurnool district, was sent by Mr. T. E. Moir. This rock is described by Mr. R. Bruce Foote (Mem. Geological Survey, India) as syenite porphyry. Mr. T. H. Holland, Director, Geological Survey of India, however, writes that "this is an exceedingly interesting specimen. The rock contains a great abundance of one of the blue amphiboles, probably crocidolite, a mineral not previously found in India. The rock can be provisionally called crocidolite-schist."

9. Natural History.—The Aquarium building on the sea-shore was approaching completion at the end of the year, but various additions in the shape of cisterns, compressed air apparatus, etc., and alterations will have to be made and carried out before it is in full working order. The proposals of the Aquarium Committee with regard to the fees to be levied from visitors, hours of admission, and establishment to be entertained, received the sanction of Government. The establishment will include two keepers, two fishermen, and a fisherman's boy. It is proposed to purchase, for the fishermen, a catamaran with its equipment. Under the rules, the aquarium will, by previous arrangement, be open to students accompanied by their teacher for the purposes of demonstration, on payment of the usual fee, from 7 to 10 A.M., *i.e.*, before the hour at which it is open to the public.

A series of skins and skulls of the palm squirrel, *Sciurus palmarum*, from various parts of the city of Madras, was sent to Mr. R. C. Wroughton, who writes as follows:—"I am trying to work out the forms and races of *Sciurus* (*Funambulus*) *palmarum*, excluding *F. tristriatus*, Waterhouse, which seems to be the "jungle" form. I believe I can distinguish two main distinct forms (spp. ?) of *F. palmarum*, the "cultivation" form, (*a*) with three pale dorsal stripes only, and with rufous buttocks and a streak along the rachis of the tail below; (*b*) with five pale dorsal stripes, and without the rufous colouring. I want to find out the distribution of these two forms, and also whether the three dorsal stripes ever occur without the rufous on the tail, or the five stripes with it. (The outermost of the five stripes on each side are often very faint, but I think always discernible.) Unfortunately the Natural History Museum, S. Kensington, is very poor. There is a fine series of "*a*" from Travancore, but of "*b*" there are only two specimens from Sind, two from Rawalpindi and one from Guzerat." I shall be grateful to correspondents, who may be willing to supply me with information concerning the markings on the common squirrel of the plains.

Skins and skulls of *Pteropus medius*, the Indian fruit-bat or flying-fox, were sent to Mr. G. E. Mason in connection with a monograph which he is preparing on the geographical distribution and endemic features of the Pteropidæ.

Among the additions to the Mammal and Bird gallery, the following may be noted:—

Skeleton of the nilgai or blue bull (*Boselaphus tragocamelus*).

Skull of the Indian gazelle (*Gazella bennetti*).

Skull and limbs of the Indian pangolin, showing the edentate jaws, and claws adapted for burrowing. This animal is popularly, and wrongly called the armadillo.

South Indian hedgehog (*Erinaceus micropus*) from the Trichinopoly district.

Common grey hornbill (*Lophoceros birostris*), shot near the Red Hills tank, a few miles from the city of Madras.

Albino crow (*Corvus splendens*) from Madras.

Black-crested baza (*Baza lophotes*), captured in the city of Madras. This bird, according to Blyth and Jerdon, occurs sparingly throughout India. A specimen was shot by Jerdon near Nellore.

Laggar falcon (*Falco jugger*) shot at Pulicat. Recorded, in the Fauna of British India, as "rare to the southward."

Indian tawny eagle (*Aquila vindhiana*) shot at Poonamallee.

A series of domestic fowl's eggs, illustrating variation in form, size, and coloration.

A small collection of earthworms from the city of Madras was sent to the Indian Museum, Calcutta. I received in exchange the following South Indian lizards not previouly represented here:—*Liolepis bellii*, *Lygosoma quentheri*, *Lygosoma dussumieri*, *Calotes ellioti*, *Calotes ophiomachus*, *Hemidactylus frenatus*, and *Gonatodes kandianus*.

A specimen of the burrowing Batrachian (*Uræotyphlus oxyurus ?*), with its eggs, from the Cochin State was presented by Mr. K. Ramunni Menon.

A colony of young hooded grasshoppers (*Teratodus monticollis*), protected by mimicry among the fruits of *Dodonæa viscosa*), was sent by Mr. A. N. Stuart from Gooty. This animal, Mr. Maxwell-Lefroy writes (Indian Insect Pests), "combines protection due to the hard sharp hood with cryptic and deceptive colouring."

Various species of rats and mice were received from the Plague department for identification.

10 Connemara Public Library.—The construction of additional book-cases, to accommodate the University Library, was completed. It has been decided that the management of the University Library be vested in a Library Committee, consisting of five Fellows of the University, who are authorised, in consultation with the Principal Librarian of the Connemara Public Library, to purchase books and journals for the University Library, and to frame rules for the issue of books, and arrange for the general administration of the University Library. The money available for the purpose of purchases is Rs. 25,619 (invested in Government securities) being a bequest from the late Mr. William Griffith to the University, and an annual grant of Rs. 4,500 from the University.

The total number of readers during the year was 17,292 against 16,839 in 1905–1906—

Largest number of readers in a day	..	..	118
Smallest „ „	..	..	17
Largest „ on Sunday	..	..	160
Smallest „ „	..	..	50

The number of standard works added to the library was 295, of which 219 were acquired by purchase and 76 presented.

I append a list of the books issued during the last two years under the various subject catalogue heads :—

	1905–1906.	1906–1907.
Anatomy; biology; natural history; zoology	1,061	703
Anthropology; folklore	311	499
Arts; industries	1,307	1,079
Atlases; maps	82	93
Belles lettres	1,714	1,252
Botany; arboriculture; horticulture	342	206
Chemistry; agriculture; photography	424	387
Classics	171	217
Dictionaries; encyclopædias; gazetteers; manuals ..	4,209	4,060
Economic products	98	130
Education; ethics; logic; philosophy; political economy	1,613	1,883
Exhibitions	67	57
Forestry; timbers	29	26
Geography; physical geography; physiography	90	177
Geology; palæontology	217	176
History	2,189	1,827
Jurisprudence	466	293
Medicine; surgery; pathology	348	336
Microscopy	51	40
Mineralogy; metallurgy	91	87
Natural philosophy	618	415
Numismatics; medals; heraldry	94	102
Philology; epigraphy	303	396
Photographs	26	51
Physiology	176	159
Public Health	127	96
Religion	924	789
Sport and games	375	361
Travels; voyages	726	602
Fort St. George Gazette (other than current issues) ..	1,222	1,037
Vernacular languages	133	149

The section of the library catalogue, which deals with books under authors' names, was going through the press. As soon as this is published, the issue of new editions of the subject indexes, for which the manuscript slips are ready, will be taken in hand.

11. Valuable Stock.—The necessary inventory was maintained and duly checked.

APPENDIX A.

Donations, 1906-1907.

Annandale, Dr. N.—

South Indian Lizards.

Liolepis bellii.
Lygosoma guentheri.
Lygosoma dussumieri.
Calotes elliotii.
Calotes ophiomachus.
Hemidactylus frenatus.
Gonatodes kandianus.

Asiatic Society of Bengal—

Thirteen silver coins of Alamgir II.
Ahmad Shah and Muhammad Shah.
Rupee of Ahmad Shah, Katak Mint.
Two coins of Ahmad Shah, Katak Mint.
Three Gadhiya paisa of the 11th or 12th century A.D.
Two silver coins of Aurangzib.
Silver coin of Nasir Shah.
Silver coins of Mahmud II.
Two coins of Shah Alam II.
Two coins of the independent Kings of Bengal.
Seven coins of Malwa struck by local rulers, or by the Mogbul emperors.
Coin of Ghiasuddin Tughlaq.
Silver coin of Tajuddin Firoz Shah.
Two gold coins of Akbar.

Barber, Mr. C. A.—

Python molurus.
Vipera russellii.
Polyodontophis subpunctatus.
Trimeresurus macrolepis.

Bauker Ali, Mr. Hakim—

Albino Indian House Crow (*Corvus splendens*).

Benson, Hon'ble Sir R. S.—

Earthenware vases and lids from prehistoric tumuli near Tirukoylur railway station, South Arcot.

Bryant, Mr. J. F.—

Wild silk Moth (*Actias selene*).

Chester, Mr. R. W.—

Common Indian rat (*Mus rattus*)
Brown rat (*Mus decumanus*).
Pied mouse.

Choudry, Mr. T.—

Magnetite from Digupudi, Bhodo Khemidy estate, Ganjam.

Coimbatore, South, District Forest Officer—

Fruits of *Grewia tiliæfolia.*

Corporation, Madras—

Nilgai (*Boselaphus tragocamelus*).
Lioness.
Crowned pigeon.
Crocodile (*Crocodilus palustris*).

Davidson, Mr. L.—

Hindu and Christian tālis, both of which were worn by a Christian convert female in Coorg.

Dique, Mr. A.—

Fish parasites, probably the encysted form of Echinorhynchus.

Gottlieb, Titus Sandhi—

Myriapod.

Government Epigraphist—

Two inscribed stones built into the floor of the first circuit of the Kricheha Udayar temple at Ambasamudram.

Holley, Mr. W. H.—
Stick insect (*Phasmid*).
Pond tortoises (*Nicoria trijuga*).

Holton, Rev. E. P.—
Chameleon (*Chamæleon calcaratus*).

Kulitalai, Range Officer—
Flowers of *Bauhinia tomentosa*, and fruits of *Capparis horrida*.

Maclean, Rev. J. W.—
Iron-age pottery, and iron implement from about 8 miles from Walajabad, Chingleput district.

Madura, District Forest Officer—
Pole of *Acacia planifrons*.

Mannarghaut, Range Officer—
Timber and bark of *Schleichera trijuga*.

Masulipatam, Port Officer—
Indian Pangolin (*Manis pentadactyla*).

Menzies, Mr. R. T.
Crocodile (*Crocodilus palustris*), young

Minchall, Mr. J.—
Cobra (*Naia tripudians*).

Nandyal, Joint Magistrate—
Dagger.

Negapatam Division, Executive Engineer—
Stone with inscription, Sétu Rámanáthen.

Padmanabhachariar, Mr. K.—
Indian pitta or yellow-breasted ground thrush (*Pitta brachyura*).

Parthasarathy Nayudu, Mr. P.—
Abnormal cocoanut, with two fully developed kernels.

Pinto, Mr. J.—
Eggs of rock snake (*Python molurus*).

Pounu & Co., Messrs. T. A.—
Token made in imitation of the Madras silver half and quarter pagodas of the English East India Company.

Qadir Badsha Sahib Bahadur—
Chronogram in Urdu with translation in English, written in honour of the visit of Their Royal Highnesses The Prince and Princess of Wales to India.

Ramakamath, Mr. C.—
Albino bandicoot rat (*Nesocia bandicota*).
Brown rat (*Mus œcumanus*).

Rea, Mr. A.—
Lead Andhra coins from Amarávati, Guntur district.

Royal Asiatic Society, Bombay Branch—
Gold pagoda of Bijapur before the Muhammadan rule.
Silver Gadhiya coin.
Gold coin of Muhammad Sháh.
Gold coin of Alamgir II.
Gold coin of Sháh Alam II.
Moghul coins, silver. Aurangzib, Farrukh-Siyar, Sháh Alam Bahádur.
Two coins of Native States of India, one silver and one copper from Jamkhad, Ahmednaggar district.
Silver Moghul coin, Aurangzib.
Silver Moghul coin, Sháh Jahán.

Salem, North, District Forest Officer—
Acha gum.
Timber and bark of *Chickrassia tabularis*.

Sandur, Diwan—
Manganite from Rámandrug, Sandur State.

Smith, Mr. J. G.—
Caspian Teru (*Hydroprogne caspia*).

Somasundram, Mr. T. C.—
Scorpions with young ones, alive.

Stoney, Mr. E. W.—
Prehistoric pottery from near Mettupollium.
Slag from Guduvancheri.

Thomas, Mr. E. F.—
Miniature bows and arrows used in a game in Malabar.

Tirupatur, Range Officer—
Wood of *Bridelia retusa*.

Tottenham, Mr A. R. L.—
Ceremonial articles used in marriages, etc., in Malabar.

Trichinopoly, Tahsildar—
South Indian Hedgehog (*Erinaceus micropus*).

United Provinces, Government—
Moghul rupees from the Kheri and Mirzapur districts.
Silver coin from Mauza Miranpur, thana Mandawar, district Bijnor.
Coin from tahsil Sanehighat in the Bara Banki district.
Six coins from near Bhind, pargana Kunch, district Jalaun.
Nine coins from Mauza Kurwa, thana Deaband, district Saharanpur.
Moghul coin from the Gorakhpur district.
Moghul coin from the Saharanpur district.
Four Moghul coins from Mauza Motipur, police station Lakhimpur, Kheri district.
Six Moghul coins from the Shahjahanpur district.
Two silver coins from Kota village, thana Kairwa, Mirzapur district.
Coin from Comilla, district Hill Tipperah, Eastern Bengal and Assam.
Moghul Akbar rupee from Banbirpur, police station, Mahmudabad, tahsil Sidhauli, district Sitapur.
Thirty-one copper coins, Sultans of Delhi from the site of the old Bhogaon post, Manipur district.

Weir, Hon'ble Mr. C. J.—
Mantis (*Gongylus gongylodes*).

Vasudevan, Mr. C.—
Betel insect (*Vettila poochee*).

Vieyra, Mr. A. J.—
Travancore 8 cash or half chakrams.

Zaccheus, Mr. W. S.—
Lizard with bifurcated tail.

APPENDIX B.

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APPENDIX C.

Classified list of Expenditure of the Government Museum during the year 1906–1907.

	Actuals, 1906-1907. RS.	Revised estimate, 1906-1907. RS.
Salaries—		
Superintendent	9,600	9,600
Exchange compensation allowance	600	600
Local allowance	2,400	2,400
Total	12,600	12,600
Permanent establishment, Government Museum—		
Herbarium keeper, first assistant, second assistant, senior and second taxidermists, writer, assistant writer and 26 peons—33 persons	7,059	
Permanent non-pensionable establishment, Government Museum—		8,200
Three gardeners, three sweepers, six watchmen, water pandal brahman, latrine sweeper, punkah-puller and chockra—16 persons	1,114	
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons—6 persons	2,686	
Permanent non-pensionable establishment, Connemara Public Library—		2,700
Servant (sweeper)—1 person	46	
Temporary establishment, Government Museum—		
Four watchmen	63	..
Total establishment	10,968	10,900
Allowance—		
Travelling allowance	296	100
Supplies and services—		
Cost of specimens purchased on tour	359	..
Objects of interest and coin purchased at head-quarters	2,302	..
Fittings, furniture, etc., for the collection	1,610	..
Cost of books and publications	846	..
Library	2,091	..
Lithographic plates	504	..
Ammunition	15	..
Charges for feeding line animals	217	..
Expenses, Reading coin	2	..
Do. Measurement	..	..
Total supplies and services	7,946	8,400
Contingencies—		
Purchase of furniture (Europe stores)	456	..
Tour charges	187	..
Freight, landing and shipping charges	5	..
Repairs to furniture	100	..
Cleaning charges	23	..
Postage do.	157	..
Telegraph do.	10	..
Telephone do.	180	..
Rents, rates and taxes	4,347	..
Office expenses including such articles as gum pots, rat traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vineger, water-pots, ropes and match boxes	616	..
Total contingencies	6,081	5,000

	Actuals, 1906-1907.	Revised estimate, 1906-1907.
	Rs.	Rs.
Marine aquarium—		
Establishment—		
Head keeper, second keeper and seven servants—		
9 persons		
Supplies and services—		
Food for animals		1,000
Contingencies—		
Lump provision		
Grand total ..	37,891	38,000

Order—No. 464, Educational, dated 19th July 1907.

Recorded.

2. The report is, as usual, interesting. The thanks of Government are due to those who made donations to the Museum.

(True Extract.)

H. D. Taylor,
Secretary to Government.

To the Superintendent, Government Museum.
,, the Director of Public Instruction.
,, the Accountant-General.
,, the Public Department.
,, the Revenue Department.
,, the Director-General of Archæology, with C.L.
,, all Collectors of districts.
Editors' Table.

Government of Madras.

EDUCATIONAL DEPARTMENT.

Recd.	1908.	*Enclosures*
Regd		*Spare copies*

G.O., No. 562, 25th July 1908.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

Government Museum and Connemara Public Library.

Recording the report on the working of the — during 1907-1908 and requesting the Chief Engineer, Public Works Department, to arrange for the early preparation of plans and estimates for the annexes to the sculpture and economic galleries and for the new clerks' office.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

Read—the following paper :—

Letter—from E. Thurston, Esq., Superintendent, Government Museum.
To—the Secretary to Government, Educational Department.
Dated—Madras, the 7th July 1908.
No.—394.

I have the honour to forward, for submission to His Excellency the Governor in Council, the report on the working of the Government Museum and Connemara Public Library during 1907–1908 and to request that I may be supplied with 160 copies for distribution to other Museums, etc.

Enclosure.

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM FOR THE YEAR 1907–1908.

Visitors.—The total numbers of visitors to the old and new buildings were 579,770 and 532,476 against 334,495 and 301,207 in 1906–1907. The largest numbers of visitors on a single day was 92,514 to the old, and 90,004 to the new building at the feast of Pongal. The total numbers of visitors on Sundays were 88,798 to the old, and 77,672 to the new building, against 60,553 and 52,443 in the previous year. The number of gosha females who visited the Museum on the monthly Saturdays set apart for them was 15,639 against 10,806 in 1906–1907.

The Museum was visited by His Highness the Maharaja and the Maharani of Mysore.

2. Buildings.—The room for the exhibition of the prehistoric collection acquired from Mr. R. Bruce Foote was completed, and the arrangement of the collection therein by Mr. Foote was nearly finished at the end of the year. The annexe to the marine gallery was also completed, and has been devoted to the exhibition of the larger marine animals, including whale bones, dugong skeleton, sharks, saw-fish, and sword-fish. A verandah on the north side of the new building was enclosed by filling in the arches, and adding windows, and has been utilised as an annexe to the ethnological section. The stone floor of the Connemara Public Library was polished throughout.

The plans and estimates for annexes to the sculpture and economic galleries and a new clerks' office, referred to in my last report, have not yet been received. The annexes referred to are very requisite, as a large number of sculptures and objects received during recent years from the Archæological Survey Department, etc., are lying in the Museum grounds, or buried away in store-rooms and other places.

3. Theatre.—The Theatre was used on fifteen occasions, during the year, as follows:—

Amateur Dramatic Society entertainments	9
Collegiate School, prize distribution	2
Presidency Training School for Mistresses, prize distribution	1
Doveton Girls' High School, prize distribution	1
Madras Musical Association, concert	1
Madras School of Music, concert	1

4. Museum conference.—I attended a conference of Curators of Museums in India, which was held at the Indian Museum, Calcutta, in December, 1907. Various topics bearing on museum administration were discussed, of which the one that appealed to me most directly was the policy of Provincial Museums. The following resolutions were passed in connection therewith :—

(1) That the Provincial Museums of India should in the main confine their scope to the Presidency, Province, or State in which they are situated.

(2) That, in the opinion of the Conference, it is desirable that, in every Province or State, there should be but one Government or State Public Museum.

(3) That the officers of every Provincial Museum should have direct access to a good reference library, and that this library should, whenever possible, be connected with the museum.

I was chosen as a member of the Standing Committee, which was appointed to make arrangements regarding future conferences, and to advise on museum matters.

5. Publications.—A Bulletin (Vol. V, 3), containing an exceedingly valuable account of the worship of village deities (Grāma Dēvatas) in Southern India by the Right Reverend Bishop Whitehead, was issued. The first edition of my 'Ethnographic notes in Southern India' being exhausted, a second issue thereof was published. I was, as last year, mainly occupied in connection with an encyclopædic book on 'the Castes and Tribes of Southern India,' which is under preparation in connection with the Ethnographic Survey, and will extend to several volumes. The Herbarium-keeper, Mr. K. Rangachari, has been engaged in the preparation of a local Flora of Madras City and the vicinity thereof. It is proposed to issue this in book form, as a general guide to the botanical section of the Museum, and to the Flora.

6. Historical.—A panoramic view of Madras, at about the same period (1820) as the one referred to in my last report, was presented by Mr. W. S. Bickham. It was published at Coromandel Place, nearly opposite Gower Street, London. Among other points of interest, it shows Government House in Fort St. George, the Banqueting Room and Government Garden House, the Admiral's house, an Indiaman from Europe saluting the flag-ship, etc.

A number of old maps, plans, and drawings, were sent to the Museum from the Government Secretariat, the most interesting of which were—

(*a*) a plan of the walls of Black Town, Madras, with the esplanades on the north and west sides, between 1815 and 1824. Therein are shown the situations of the Hon'ble Company's tank, Trivatore or Elephant gate, Pullee Street gate, boatman's gate, Clive's battery, and water-works for supplying water to the garrison and shipping ;

(*b*) plans of a new bridge over the river near the Governor's garden (now Government House), 1802.

Five large guns, which were formerly arranged round the statue of Lord Cornwallis in Fort St. George, were transferred to the Museum, and set up in the grounds thereof. Of these guns, two bear the arms of Spain, and were taken by the Madras army under the command of Brigadier-General Draper at the storming of Manilla in 1762. The citadel capitulated, the conditions being the cession of the whole Philippine Archipelago, and the payment of four millions of dollars. Two of the guns bear the monogram of Christian the Seventh, King of Denmark, and were probably obtained when the Danish settlement of Tranquebar was acquired from Denmark in 1845. One gun has the mouth and trunnions fashioned in the form of tigers' heads, and is believed to have been taken at the fall of Seringapatam on 4th May, 1799, when Tīpū Sultān lost his life.

7. Anthropology.—Prolonged tours were made in the South Canara district by myself and Mr. K. Rangachari, in the course of which anthropometric data relating to various Tulu classes—Shivalli Brahmans, Bants, Billavas, and Mogērs—were obtained. The most conspicuous character thereof was the high cephalic index as compared

with that of the Malayālam classes in Malabar, which is brought out by the following table :—

—	Language.	Index.		Number of times index exceeds 80.
		Average.	Maximum.	
Thirty Shivalli Brahmans	Tulu	80·4	96·4	17
Fifty Billavas	Do.	80·1	91·5	28
Forty Bants	Do.	78	91·2	12
Forty Mogers	Do.	77·1	84·9	9
Forty Mukkuvans	Malayālam	75·1	83·5	2
Forty Nayars	Do	74·4	81·9	1
Twenty-five Tiyans	Do.	73·1	78·7	0

In South Canara, the " manners and customs " of various castes and tribes were studied. These included the Holeyas, Koragas, Kudubis, Kudiyas, Halepaiks, Bilimaggas, and the Nalkes, Paravas, and Pambadas, or devil dancers, who, disguised as various bhūthas, play a very important part in the worship of the Tulu people.

Among the additions to the Ethnological Section of the Museum, the following may be noted :—

(1) Blowpipes from Malabar, used for killing fish, birds, and small game. In one form, the tube consists of a piece of straight, slender bamboo, about 4′ 6″ in length, and in the other of two pieces of the stem of the areca palm placed face to face, so that a complete tube is made. Round the exterior, thin cloth or tree-bark, steeped in gum, is tightly wrapped, so that the two halves are kept together. Sometimes the blowpipe is decorated with painted designs. The arrow consists of a reed shaft and iron head, which, by means of a socket, fits loosely on the conical end of the shaft. A piece of string, several feet long, is tied round the head, and wound tightly round the shaft. When the arrow is discharged by blowing from the tube, and enters, for example, the body of a fish, the string is uncoiled from the shaft, which floats on the surface of the water, and points out the position of the fish which is hauled up.

(2) Silver lizard offered at a temple in South Canara, as a lizard falling on some parts of the body, especially the kudumi (hair knot) of a female, is unlucky. A case was cited, in which a lizard did so, and the woman lost her husband eight days afterwards, as she had not made an offering. The priest is consulted when a lizard falls on the body, as to whether the omen is auspicious, or the reverse.

(3) Levelling plank used in the kambla buffalo races in South Canara. A pair of racing buffaloes, which may cost from Rs. 150 to Rs. 500, is harnessed to the plank, at the distal end of which is a small square board, on which the driver stands. The races take place in a ploughed field flooded with water. " The racing ", Mr. H. O. D. Harding writes, " is for no prize or stakes, and there is no betting, starter, judge or winning-post. Each pair of buffaloes runs the course alone, and is judged by the assembled crowd for pace and style, and, most important of all, the height and breadth of the splash which is made. Rich Bants keep a kambla field consecrated to buffalo racing. The races are a sort of harvest festival ". They are held in the autumn, before the second or sugge crop is sown. Devils (bhūthas) must be propitiated, and, on the previous night, the Koragas sit up, and perform a ceremony called panikkuluni, or sitting under the dew. To propitiate various devils, the days following the races are devoted to cock fighting, in which the birds are armed with cunningly devised steel spurs of various sinuous forms. It is believed that the bhūtha is appeased, if the blood of a wounded bird falls on the ground. At Udipi, I acquired a replica of a representation in solid brass of a pair of racing buffaloes, with plank and driver, which had been offered at the temple by the owner of a pair of buffaloes which had fallen ill.

(4) A series of brass images of bhūthas worshipped in South Canara, or dedicated as votive offerings at bhūthasthanas (devil shrines). These include Maisandeya (head of a buffalo), Pilichaundi (tiger), Panjurli (head of a wild boar), Baikadithi Panjurli (boar), and human figures named Jarandaya, Bobbariya, Kalkutta, Jumādi, Kodamanitaya, Guliga, Māsti, and Kodababbu.

(5) A very interesting example of sympathetic magic in the shape of a wooden representation of a human being, which was washed ashore at Calicut, Malabar. The figure is made of soft wood, and is eleven inches in height. The arms are bent on the chest, and the palms of the hands are placed together as in the act of saluting. A square cavity, closed by a wooden lid, has been cut out of the middle of the abdomen, and contains tobacco, ganja (Indian hemp), and hair. An iron bar has been driven from the back of the head through the body, and terminates in the abdominal cavity. A sharp cutting instrument has been driven into the chest and back in twelve places.

(6) A series of votive offerings from the North Arcot district, consisting of a gold elephant, elephant's trunk, bull, feet, trident, and battle-axe.

(7) A large para measure painted red, green, yellow, and black, such as is used during ceremonial observances in Malabar.

(8) Basket and bells, called kūdum mani or nayati, used by jungle people in North Malabar when hunting. A thick wick, made of a fruit called pindi kai (wild nutmeg) is placed on a piece of iron inside a large wicker basket and lighted. A man carries the basket on his head, and a row of metal bells in his right hand. He is followed by two or three men in Indian file, armed with bows and arrows or guns. They go at night in open spaces in the jungle, moving forwards with a peculiar dancing motion. The light is turned in all directions, and the bells are rung. Animals are attracted by the light and noise, and, when they come within range, are shot. The animals are said to believe that the apparatus is the vehicle of Siva descending from heaven.

(9) Large plaited hat worn by Arayans of Cochin.

A commencement was made in connection with a collection of articles used by various castes during worship or the performance of ceremonial rites. So far, the collection includes the following :—

(*a*) Sālagrāma stone, which is kept in the house and worshipped by Smarta and Vaishnava Brāhmans.

(*b*) Panchamūdra or metal discs used by Mādhva Brāhmans for making marks on the body and forehead. The discs represent the āyudhas or weapons of Vishnu, and are called sankha, chakra, gada, padma and narayana.

(*c*) Rudrāksha (*Elæocarpus Ganitrus*) beads and discs of bael (*Ægle Marmelos*) fruits and glass beads worn round the neck by Saivites during worship.

(*d*) Rudrāksha, called Gauri sankar, usually set in gold and worn by devout Saivites, Tambirāns and Brāhmans.

(*e*) Receptacles for keeping sacred ashes (vibhūthi).

(*f*) The paraphernalia of an orthodox Vaishnavite, consisting of a box for keeping the material for making the nāmam mark, lotus seed necklace, silk thread necklace, sandal paste casts of the feet of the god, and a silk cloth with the impressions of the feet of the guru or god.

(*g*) Bamboo tassels from Kottiyūr in Malabar. Pilgrims carry away from this place a span length of green bamboo crushed into fibre and shaped like a tassel. These tassels are considered to be very sacred, and are tied to the roof of the house. It is believed that bamboos from other places are not capable of this transformation.

(*h*) Images of Gauri and Ganēsa worshipped by women on festival days.

(*i*) Clay images worshipped by the Odavāndlu (fishing caste) in Ganjam.

(*j*) Pots carried by Mādiga Mātangis as insignia of their office.

(*k*) Earthen pots used during the marriage ceremonial by various castes in the Tamil country, *e.g.*, Pandamutti Pallis.

(*l*) Various types of bottu (marriage emblem) worn by married women of some Telugu and Kanarese castes.

(*m*) Metal discs or plates with the figures of deities stamped on them, which are kept in the house and worshipped by various castes.

(*n*) Painted wooden goat and elephant vehicles for village deities (grāma dēvatas).

I shall be very glad to receive assistance in the development of this collection, which is capable of being made very interesting in connection with the higher and lower forms of religion.

8. Archæology; Art.—To the Archæological Survey Department the Museum was indebted for a number of marble slabs excavated on the site of the Buddhist stūpa at Amarāvati in the Guntūr district. The carvings on some of the marbles are more rude and grotesque than those on the marbles from the railing of the stūpa, which are exhibited at the Madras Museum and British Museum, London. Some of the slabs bear short incriptions, and are devoid of carving, and possibly belong to an earlier date than those previously received from Amarāvati. The Museum further received from Amarāvati a small golden casket shaped like a dagoba, which contains a small fragment of bone and six golden flowers. Many crystal caskets have been received from Amarāvati, but this is the first record of a golden casket.

From the Archæological Survey Department the Museum also received a collection of prehistoric pottery, cists, etc., from Perambair in the Chingleput district, concerning which Mr. A. Rea writes as follows: "The cists are curious in that they have three rows of legs, while all those from Pallāvaram have only two. The cists are also much shorter and broader than those from Pallāvaram. There are also some good specimens of long jars with legs. There is one with four spouts round the mouth, such as I have not seen before".

An earthenware pot, of a shape new to Southern India, was received from Mr Wood. It was dug up at Sholingur in the North Arcot district, in the course of excavations for a building, in a well, which had been filled in. A small collection of pottery was presented by Mr. R. W. Partridge, by whom it was discovered in an old gold working at a depth of 20 feet at Nawinchal.

A large series of metal deities were secured, under the Treasure Trove Act, from the North Arcot district.

Two large cases of South Indian metal—ware were added to the existing collection. An interesting series of wood blocks, illustrating the designs formerly used in the block-printing of textile fabrics was also exhibited.

9. Numismatics.—The following coins were acquired under the Treasure Trove Act:—

Dūdu of the French East India Company, from the South Arcot district, bearing on the obverse a fleur-de-lis, and on the reverse the legend Puduchchēri (Pondicherry) in Tamil.

Gold coins of the Delhi Sultāns Ghiyas-ad-din Taglak and Ala-ad-din Muhammad Shah I—from the Tanjore district.

Gold pagodas of the Vijayanagar dynasty, having on the obverse a seated figure of Vishnu and the chank and chukram, and on the reverse the Nāgari legend Srí Pratapa Krishna Raya—from the Kurnool district.

Rāsi fanams, bearing on the obverse an emblem commonly said to be a rude form of Kāli, and on the reverse doubtful devise and rows of dots—from the Coimbatore District.

Arcot rupee of the French East India Company—from the Tinnevelly district.

A copper coin of the Vijayanagar King Harihara was presented by Mr. V. Venkayya of the Archæological Department.

I undertook to perform, in respect of Mysore and Coorg, those functions which have been assigned to me in Madras under the rules regulating proceedings under the Treasure Trove Act.

To the United Provinces Government, the Asiatic Society of Bengal, and the Bombay branch of the Royal Asiatic Society, the Museum was indebted for many coins of Northern India. Among these, the most interesting were a series of Nahapan coins from the extensive find thereof in the Nassik district.

10. Mineralogy.—My assistant, Mr. V. Govindan, was deputed to collect massive specimens of the rock referred to in my last report as "crocidolite schist, from an isolated hill near Racherla, about 8 miles north of Giddalur in the Cumbum taluk of the Kurnool district.

Specimens of manganite were received from the Sandur State.

A typical slab of laterite used for building purposes was obtained at Mudbidri, South Canara.

11. Natural History.—Among the additions to this section, the following may be noted :—

Skeleton of *Hystrix leucura*, the Indian Porcupine.

Skeleton of *Antilope cervicapra*, the Indian Antelope or Black Buck, from the Government House Park, Madras.

Skull of *Nesocia bengalensis*, the Indian Mole Rat.

Ketupa zeylonensis, the brown Fish Owl.

Motacilla alba, the white Wagtail. Recorded, in the Fauna of British India, as a winter visitor to the whole Empire as far south in the peninsula of India as Belgaum. The bird was secured at the Red Hills, near Madras.

Dissemurus Paradiseus, the larger Racket-tailed Drongo.

Eggs of the following birds :—

Oriolus kundoo, the Indian Oriole.

Sarcogrammus indicus, the Red-wattled Lapwing.

Sterna seena, the Indian River Tern.

Sterna minuta, the Little Tern.

To Colonel C. E. Shepherd, who was engaged in making a collection of otoliths (ear-bones) of fishes, the Museum was indebted for a small series of these bones, as well as for a number of bony fishes caught off Madras. A cat-fish (*Arius*), with the eggs in its mouth, was received from Tellicherry, Malabar.

A specimen of the handsome snake *Chrysopelea ornata* was received from the Kadūr district, Mysore. This species is recorded, in the Fauna of British India, from the Anaimalai hills. A specimen of the common South Indian snake *Typhlops braminus* was sent for identification. It is commonly known as the ear snake, because it is supposed to enter the ears of a sleeper, and produce certain death.

A collection of unidentified insects from Madras, Bangalore, and other localities, was forwarded to Mr. H. Maxwell-Lefroy, who has kindly undertaken to have it worked out at the Agricultural Research Institute, Pusa.

12. Connemara Public Library.—The total number of readers during the year was 17,679, against 17,292 in 1906-1907.

Largest number of readers in a day	168
Smallest „ „	14
Largest „ on Sunday	145
Smallest „ „	23

The number of standard works added to the library was 312, of which 246 were acquired by purchase, and 66 presented.

I append a list of the books issued during the last two years, under the various subject catalogue heads :—

	1906-1907.	1907-1908.
Anatomy ; biology ; natural history ; zoology	703	810
Anthropology ; folklore	499	732
Archæology ; architecture	341	506
Arts ; industries	1,079	1,103
Atlases ; maps	93	122
Belles lettres	1,252	1,847
Botany ; arboriculture ; horticulture	206	183
Chemistry ; agriculture ; photography	387	248
Classics	217	373
Dictionaries ; encyclopædias ; gazetteers ; manuals	4,060	3,871
Economic products	130	195
Exhibitions	57	59
Forestry ; timbers	26	48
Geography ; physical geography ; physiography	177	155

	1906-1907.	1907-1908.
History	1,827	2,220
Jurisprudence	293	484
Medicine; surgery; pathology	336	379
Microscopy	40	65
Mineralogy; metallurgy	87	107
Natural philosophy	415	538
Numismatics; medals; heraldry	102	76
Philology; epigraphy	396	498
Photographs	51	35
Physiology	159	301
Public Health	96	102
Religion	789	939
Sport and games	361	331
Vernacular languages	149	116
Fort St. George Gazette (other than current issues) ..	1,037	638

Volume I of the library catalogue, dealing with books under author's names, was issued during the year.

A grant of a lakh of rupees was made by Government, to be added to the Griffith bequest referred to in my last report, for the foundation of a University Library, which is to be housed in the Connemara Public Library building. The various Boards of Studies of the University were asked by the University Library Committee, of which I am *ex-officio* Chairman, to draw up lists of books and periodicals to be acquired. A separate establishment, consisting of an assistant librarian, an attendant, and two peons, was appointed in connection with the University Library.

13. Valuable Stock.—The necessary inventory was maintained, and duly checked.

APPENDIX A.

DONATIONS, 1907–1908.

Adam, Mr. J. C.—

Abnormal Duck's egg.

Asiatic Society of Bengal—

Four silver coins of Ahmad Shah Bahadur, found in the Saran district.

Two silver coins of Aurangzib, found in the Sambalpur district.

Silver coin of Shah Alam II, found in the Faridpur district.

Eight silver coins of Jehangir, Shah Jahan, found in the Jhelum district.

Silver coin of Muhammad Shah, found in the Sambalpur district.

Coin of Shah Alam, found in the Jubbulpur district.

Gadhaiya paisa, found in the Ajmera district.

Three silver coins of the early Mussalman Governors of the Sind, found in the Ajmere district.

Six copper coins of Moghul Emperors, and coins struck by local rulers at Hyderabad, found in the Wun district.

Silver coin of Alauddin Hussain of Bengal, found in the Murshidabad district.

Three silver coins of Akbar, Shah Jahan and Aurangzeb, found in the Gujranwala district.

Five silver coins of Govind Singh, found in the Amritsar district.

Two Indo-Scythian gold coins, found in the Peshawar district.

Two copper coins of Shamsud-din-Altamash Saifuddin Hasan Qarbigh, found in the Gujranwala district.

Silver coin struck by the Sikhs, found in the Sialkot district.

Eight silver coins of Guru Gobind Singh, found in the Gujranwala district.

Two copper coins belonging to the Shahiya king of Samanta Deva of Kabul, found in the Rawal Pindi district.

Twenty-eight copper coins of Bahmani kings, found in the Betul district.

Assistant Archæological Superintendent for Epigraphy—
Copper coin from the Seven Pagodas of the reign of the Vijayanagar King Hari Hara II.

Best & Co., Messrs.—
Boxes of cores extracted during boring operations in the Tiruvellur taluk and Beddadavol.

Bickham, Mr. W. A.—
Panoramic View of Madras.

Bradley, Hon'ble Mr. H.—
Malabar para measure.

Burnett, Mrs.—
Catfish (*Arius splendens*) with eggs in its mouth.

Calicut, Port Officer—
Wooden figure (example of sympathetic magic) from the sea at Calicut.

Chingleput Division, Executive Engineer—
Brick used in the temple construction at Tenneri, Conjeeveram taluk, about four centuries ago.

Choi, Mr. K. V.—
Sand snake (*Gongylophis conicus*).

Coimbatore, North, District Forest Officer—
Bark of *Olea dioica*.

Corporation, Madras—
Tigress (*Felis tigris*).
Malay Bear (*Ursus Malayanus*).
Indian Ratel (*Mellivora indica*).
Indian Porcupine (*Hystrix leucura*).
Nilgai (*Boselaphus tragocamelus*)
Black swan.
Cassowary.
Ostrich.

Creed, Mr. J. L.—
Gasterocantha geminata.

Ernest, Mr. D.—
Stick insect.
Fragments of Echinus (Sea urchin).
Mantis.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

Gilby, Mr. R. A.—
Chrysalis.

Glyn, Major, G. C.—
Black Buck (*Antelope cervicapra*).

Hoare, Mr. W. E.—
Manganite from the Sandur State

Holten, Rev. E. P.—
Snake (*Eryx johnii*).

Kasargod taluk, Tahsildar—
Kambla plough.

Partridge, Mr. R. W.—
Pottery unearthed in an old gold working at a depth of 20 feet, and two other pieces of earthenware at Nawinchal, by the Indian Minerals Exploration Company, Limited.

Pollachi, Range Officer—
Timber of *Lagerstræmia lanceolata*.

Ragoonatha Row, R., Dewan Bahadur—
Cloths from the fibre of *Calotropis gigantea* sold in Tanjore.

Ramunni Menon, Mr. K.—

Large Indian squirrel (*Sciurus indicus*).

Rea, Mr. A.—

Gold dagoba casket found in a mound at Amaravati, containing a bone and six gold flowers.

Royal Asiatic Society, Bombay Branch—

A complete set, numbering twenty-two specimens, of silver Nahapan coins from the great hoard discovered last year in the Nasik district.

Five silver wire coins called Larin.

Silver coin, Aurangzeb. Mint Bhilsa?

Silver. Shah Alam Bahadur. Azimnagar Mint, A.H. 1120 R. 2.

Silver. Farruk Siyar, Mint Azimnagar, found in the Bijapur district.

Copper coin of Akbar, Ahmedabad. Mint found in the Kaira district.

Coins—Moghul Emperors—

Aurangzeb, gold, Cambay Mint.

Aurangzeb, silver, Surat Mint.

Farruk Siyar, silver, Junagar Mint.

Muhammad Shah, silver, Surat Mint, found in the Panch Mahals district.

Salem, North, District Forest Officer—

Gum of *Chickrassia tabularis*.

Sarvothama Row, Mr. S.—

Minerals. Rock crystals and Iron Pyrites from Bhákarapet, Vayalpad taluk, Cuddapah.

Shepherd, Col. C. E.—

Otoliths of Fishes.

Sivasamudram, Jaghirdar—

Cockatoo.

Spring, Mr. F. J. E.—

Clay urn from Palavaram.

Strange, Mr. A. B.—

Lizard (*Draco Dussumieri*)

Snake (*Chrysopelia ornata*)

Thorpe, Mr. P. F.—

Fly known as the "Hippo," obtained at Beira, Portuguese East Africa.

United Provinces, Government.

Three coins of Somesvara Deva, Chahada Deva, Madana Pala Deva, found at Lansdowne in the Garhwal district.

Seven Moghul coins.

Aurangzeb rupees of the Lahore, Shah Jahanabád, and Surat Mints.

Kam Baksh, Baraili Mint?

Eight Moghul coins of Shah A'lam

Ahmadnagar Farrukhabad Mint.

Four Moghul rupees. Akbar, Salim Shah, Jehangir.

Five Moghul rupees, found in the Hamirpur district.

Wilson, Mr. J.

Pot with ringstand from West Hill, Calicut, Malabar.

APPENDIX B.

CLASSIFIED list of Expenditure of the Government Museum during the year 1907-1908.

	Actuals, 1907-1908.	Revised estimate, 1907-1908.
	RS.	RS.
Salaries—		
Superintendent	9,600	9,600
Exchange compensation allowance	600	600
Local allowance	2,400	2,400
Total ..	12,600	12,600

	Actuals, 1907-1908.	Revised estimate, 1907-1908.
	RS.	RS.
Permanent establishment, Government Museum—		
Herbarium keeper, first assistant, second assistant, senior and second taxidermists, writer, assistant writer and 26 peons—33 persons		
Permanent non-pensionable establishment, Government Museum—	7,944	8,300
Three gardeners, three sweepers, six watchmen, water pandal Brahman, latrine sweeper, punkah-puller and chockra—16 persons		
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants, and two peons—6 persons		
Permanent non-pensionable establishment, Connemara Public Library—	2,673	2,700
Servant (sweeper)—1 person		
Temporary establishment, Government Museum—		
Four watchmen	185	..
Famine batta	331	..
Total, establishment ..	11,133	11,000
Allowance—		
Travelling allowance	1,055	400
Supplies and services—		
Cost of specimens purchased on tour	841	..
Objects of interest and coins purchased at head-quarters	794	..
Fittings, furniture, etc., for the collection ..	2,235	..
Cost of books and publications	832	..
Library	2,119	..
Lithographic plates	717	..
Ammunition	10	..
Charges for feeding live animals	203	..
Expenses, reading coins	4	..
Do. measurement	..	..
Total, supplies and services ..	7,755	6,600
Contingencies—		
Purchase of furniture (Europe stores)	43	..
Tour charges	254	..
Freight, landing and shipping charges	..	..
Repairs to furniture	99	..
Cleaning charges	15	..
Postage do.	140	..
Telegraph do.	17	..
Telephone do.	180	..
Rents, rates and taxes	4,473	..
Office expenses including such articles as gum pots, rat traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vineger, water-pots, ropes, and match boxes	626	..
Miscellaneous	138	..
Total, contingencies ..	5,985	6,400
Marine aquarium—*		
Establishment—		
Head keeper, second keeper and seven servants—9 persons	..	..
Supplies and services—		
Food for animals	..	..
Contingencies—		
Lump provision	..	..
Grand Total ..	38,528	37,000

* The marine aquarium was not opened.

ROYAL LIBR... BO... BR... OF ASI...

Order—No. 562, Educational, dated 25th July 1908.

Recorded.

2. The Chief Engineer, Public Works Department, will be requested to arrange for the early preparation of plans and estimates for the annexes to the sculpture and economic galleries and for the clerks' office referred to in paragraph 2 of the report.

3. The thanks of Government are due to the persons who made donations to the Museum during the year.

(True Extract.)

H. D. TAYLOR,
Secretary to Government.

To the Superintendent, Government Museum.
,, the Director of Public Instruction.
,, the Accountant-General.
,, the Public Department.
,, the Revenue Department.
,, the Public Works Department.
,, the Director-General of Archæology, with C.L.
,, all Collectors.
Editors' Table.

REPORT ON THE ADMINISTRATION

OF THE

GOVERNMENT MUSEUM AND CONNEMARA PUBLIC LIBRARY

FOR THE YEAR

1908-1909.

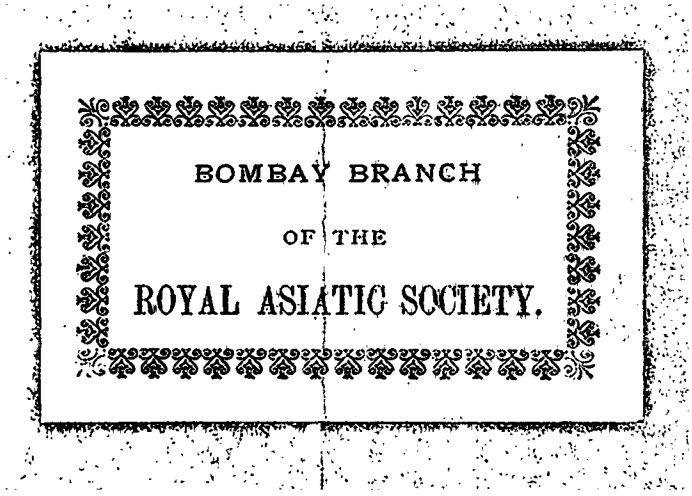
LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

Not for sale.

B. B. R. A. Society, No.

Not to be kept more than seven days.

Vol.


BOMBAY BRANCH
OF THE
ROYAL ASIATIC SOCIETY.

BOM BRANCH OF THE ROYAL ASIATIC SOC

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper :—

Letter—from J. R. HENDERSON, Esq., M.B., F.L.S., Acting Superintendent, Government Museum.
To—the Secretary to Government, Educational Department.
Dated—Madras, the 7th July 1909.
No.—341.

I have the honour to forward, for submission to His Excellency the Governor in Council, the report on the working of the Government Museum and Connemara Public Library during 1908–1909, and to request that I may be supplied with 160 copies for distribution to other museums, etc.

ENCLOSURE.

Administration Report of the Madras Government Museum for the year 1908–1909.

Mr. Thurston, the permanent Superintendent, proceeded on leave on the 9th December 1908, and I had therefore charge of the museum during less than four months of the year under review. This report is largely compiled from notes furnished by Mr. Thurston.

2. VISITORS.—The total numbers of visitors to the old and new buildings were 529,663 and 521,720 against 579,770 and 532,476 in 1907–1908. The largest number of visitors on a single day to the old building was 63,506 on 3rd January (Dvadasi festival), and to the new building 87,921 on 15th January (Kannu Pongal). The total numbers of visitors on Sundays were 151,496 to the old and 138,106 to the new building, against 88,798 and 77,672, respectively, in the previous year; the excess in the year under review was due to the fact that Dvadasi festival fell on a Sunday. The number of Gosha females who visited the museum on the days set apart for them (the first Saturday in each month) was 13,269 against 15,639 in 1907–1908.

The museum was visited on 11th December by His Excellency the Right Hon'ble Lord Kitchener, Commander-in-Chief in India.

3. BUILDINGS.—The preliminary plans and estimates prepared by the Executive Engineer, Presidency Division, for the annexes to the sculpture and economic galleries and for the new clerks' office were forwarded to Government, but orders have not yet been issued for the preparation of detailed plans and estimates.

4. ESTABLISHMENT.—M.R.Ry. V. Govindan, B.A., after thirteen years of highly efficient service, resigned his appointment as Sub-Librarian and Personal Assistant on being appointed to the staff of the Department of Fisheries Investigation, and was succeeded by M.R.Ry. P. Ethirajulu Naidu, B.A., formerly in the Revenue Secretariat. M.R.Ry. K. Rangachari, M.A., L.T., after a service of twelve years, during which in addition to excellent work in the botanical and economic sections, he rendered valuable assistance to the permanent Superintendent in connection with his investigations in South Indian ethnology, vacated his appointment as Herbarium-keeper on transfer to the Educational Department. M.R.Ry. M. O. Parthasaradhi Aiyangar, B.A., has been appointed Herbarium-keeper on probation. A. Isayah, the senior taxidermist, died during the year.

5. THEATRE.—The theatre was used on ten occasions during the year as follows :—

Amateur Dramatic Society entertainments	6
Collegiate School, entertainment and prize distribution	2
Presidency Training School for Mistresses, prize distribution	1
Entertainment in aid of the Poor Fund, General Hospital	1

6. PUBLICATIONS.—The encyclopædic work on "The Castes and Tribes of Southern India", referred to in paragraph 5 of the last annual report, is passing rapidly through the press, and four volumes are now ready. It is hoped that the remaining volumes will be completed before the close of the current official year.

7. HISTORICAL.—An interesting addition to this section is an ivory cane with a silver ring inscribed "Mahé de la Bourdonnais." Bertrand Francois Mahé de la Bourdonnais was the French General, who, in the war of 1743 between France and England, went to the succour of Dupleix at Pondicherry. He besieged the English at Madras and compelled them to capitulate in 1746.

Another noteworthy addition is a wooden measure of the time of the Danish King, Christian VII, with the monogram of the King C 7. It also carries a crescent, and the bale-mark of the English East India Company with the date 1852, seven years subsequent to the acquisition of Tranquebar by the Company. The crescent perhaps indicates the temporary suzerainty of the Nāwāb of Arcot, who subdued and imprisoned the Rāja of Tanjore, to whom Tranquebar had belonged.

8. ANTHROPOLOGY.—The new ethnological annexe, formed by enclosing a verandah in the new building, was arranged and opened during the year.

Among the additions to the ethnological section of the museum, the following may be noted :—

(1) A series of gold and silver votive offerings (*ex votos*) from the temple at Guruvāyūr, Malabar, consisting of gods, a baby in a cradle, tortoises, breasts, eyes, etc., added to the existing collection exhibited in the art gallery.

(2) Transparencies of devil-dancing in South Canara exhibited in a carved wooden stand in the art gallery.

(3) Wood carvings of the avatars of Vishnu.

(4) A series of painted wooden gods worshipped by sea-fishermen in Ganjám.

(5) A collection of jewelry and clothing worn by Gadabas and Bonda Porojas, presented by Mr. C. A. Henderson, I.C.S.

A set of anthropometric instruments was transferred to the museum from the Medical College with the sanction of Government.

9. ARCHÆOLOGY AND ART.—The golden casket with a fragment of bone and six golden flowers, referred to in the last annual report, was sent to the Collector of Guntúr on his requisition in connection with an enquiry under the Treasure Trove Act.

Eight copper-plate inscriptions were received from the Assistant Archæological Superintendent for Epigraphy, for deposit in the museum.

Among the additions to the archæological and art sections may be noted :—

(1) A large circular cup or trough of marble with a square hole at the bottom, bearing an inscription in Brâhmi character, which was found in front of a private residence in Garikopâdu Agrahara, Sattanepalle taluk, Guntúr district (*vide* Progress Report of the Assistant Archæological Superintendent for Epigraphy, Southern Circle, for 1907–1908, part II, paragraph 8).

(2) Two Buddhist stone figures, one in a good state of preservation, from Elaiyur village, Nannilam taluk, Tanjore district.

(3) Two Jain stone figures from the village of Pedda Tumbalam, Adóni taluk, Bellary district. They appear to be Gautamas and are interesting specimens of statuary.

(4) Treasure trove deities from the villages of Tiruvarambur and Ulundungudi, Trichinopoly district.

(5) A copper god and goddess on a pedestal, from Tanjore.

(6) An extensive series of carved wooden beams, lintels, etc., acquired by purchase. This wood-work came from an old house, dismantled in the course of additions to the Madras Christian College, which house, according to tradition, was occupied by Count Lally during the siege of Madras by the French in 1758.

(7) An old hookah with elaborate metal work, said to have formerly belonged to one of the Nāwābs of the Carnatic.

(8) Two old paintings of the Nizam of Hyderabad and the Nāwāb of Cuddapah, with troops in procession. They are exhibited on the staircase of the new building.

(9) An ivory figure of Vallabha Ganesa made at the School of Arts, Trivandrum.

(10) A set of finely executed carved ivory chessmen made in Tirupati.

10. NUMISMATICS.—The following coins were acquired under the Treasure Trove Act:—

(1) Sixty-four gold coins from the Vizagapatam district. Sixty-three of these bear on the obverse a recumbent bull facing the proper left, accompanied by a trisula and a lamp stand; the reverse bears the Nagari letter *pa*, with a numeral below it, probably denoting the regnal year of the king by whom the coins were issued. The remaining coin bears on the obverse the numeral 14 with the Telugu letter *ja* above it; the reverse is not well preserved but the bull is certainly not present. The coins of the first series were attributed by Dr. Hultzsch to the Ganga dynasty of Kalinganagara, the modern Mukhalingam in the Ganjám district. The Ganga crest was a bull. Dr. Hultzsch assigned the coins to the Eastern Ganga king Ahantavarman Chôdaganga, who ascended the throne in A.D. 1078.

(2) Four hundred and thirty-six small copper coins with chequered reverse (early Mysore), and a gold fanam from the Coimbatore district.

(3) Nine hundred and ninety-one purānas, and a small gold jewel found in the village of Venbavur, Perambalúr taluk, Trichinopoly district. These purānas are irregular pieces of silver, with Buddhist symbols punched on the surface. They represent the earliest Indian metallic currency, and finds often of considerable size, have occurred from time to time in various localities throughout the country.

(4) An elephant ("Gajapati") pagoda from the Tanjore district.

(5) Fifty copper coins from the South Arcot district.

(6) Nine pagodas ("poovarahans"), and fourteen gold fanams, from the South Arcot district.

(7) Twenty-one gold coins from the Cuddapah district, consisting of pagodas and fanams of well-known types.

(8) Seven hundred and eleven Andhra lead coins, found at Hakkalapalli, Anantapur taluk, Anantapur district. They belong to the well known "horse type", commonly met with in the Kistna and Gódávari deltas, and their occurrence in a new locality is of interest.

Sixty-eight copper coins and one gold coin, found in the Vizagapatam district, were received from Mr. A. Rea, Superintendent for Archæology, Southern Circle. M.R.Ry. V. Venkayya, Assistant Archæological Superintendent for Epigraphy, to whom they were submitted, attributes the copper coins to Vishnuvardhana, the first Eastern Chalukya king, who according to Dr. Fleet reigned from A.D. 615 to 633. Mr. Venkayya reports that the gold coin belongs to the reign of Samudragupta, the most powerful king of the Gupta dynasty of Magadha, and that its occurrence so far south is unusual. Samudragupta, who reigned from A.D. 326 to 375, claimed to have conquered Pithápuram in the Gódávari district, and to have extended his military operations as far south as Conjeeveram. The coin belongs to an unusual type, and is not referred to by Mr. V. A. Smith (*Catalogue of Coins in the Indian Museum*); it combines in one coin, the two types described by Mr. Smith, as the "Archer" and "Spearman" types.

Fifty-two copper coins of Muhammad Tughlak, found in the Bellary district, were presented by M.R.Ry. S. Venkoba Rao.

Twenty-three gold coins with Arabic inscriptions, coined at Aden, Alexandria, and Cairo, in the thirteenth and fourteenth centuries, which formed part of a large hoard found in the Tinnevelly district in 1872, were purchased from Sir Arundel T. Arundel, K.C.S.I.

To the Eastern Bengal and Assam Government, the Central Provinces Government, the United Provinces Government, the Punjab Government, the Asiatic Society of Bengal, and the Bombay Branch of the Royal Asiatic Society, the Museum was indebted for many coins of Northern India.

11. NATURAL HISTORY.—Among the additions to this section, the following may be noted:—

An ant nest presented by the Hon'ble Dr. A. G. Bourne, C.I.E. About a dozen of the nests were found on a nīm tree (*Melia azadirachta*) near Hampi, in the Bellary district. They were made of the green leaves of the tree joined together by a glutinous substance.

A new and large eagle-ray from Madras, *Dicerobatis thurstoni*, described by Captain R. E. Lloyd, I.M.S., in the Records of the Indian Museum, Volume II, part 2, July 1908.

Limonidromus indicus, the Forest-Wagtail.

Glaucidium radiatum, the Jungle Owlet.

Hypothymis azurea, the Indian black-naped Flycatcher. This bird, taken in the outskirts of Madras, is new to the district.

Pictures of ducks from Baker's "Indian Ducks and their Allies", and of rats from Hossack's "Rats of Calcutta" (Memoirs of the Indian Museum), were framed and exhibited.

A collection of insects from various South Indian localities, sent for identification to the Agricultural Research Institute, Pusa, was returned with many of the species named.

A series of fresh-water sponges, collected in and around Madras, was sent to the Indian Museum, Calcutta, where the species were identified by Dr. Annandale.

The Marine Aquarium building was taken over from the Public Works Department on 3rd November, and since then the work has been mainly experimental. Unforeseen difficulties, mainly connected with the æration of the water, have been experienced, but at the close of the year under review the tanks were stocked with fish and they appear to be thriving. The aquarium is probably the first of its kind to be erected in a tropical country, hence to many of the problems connected with its successful working, such as æration, the selection of fish, etc., there exists no guide. With the approval of Government, Mr. James Hornell of the Department of Fisheries Investigation, was added to the Committee. The second-keeper was appointed in December. The Committee have decided to continue the experimental stage during the hot weather of 1909, and later in the year it is proposed to throw the aquarium open to the public.

12. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 18,663, against 17,679 in 1907–1908.

Largest number of readers in a day	.. ..		173
Smallest	„ „		14
Largest	„ on Sunday		186
Smallest	„ „		49

The number of standard works added to the library was 263, of which 227 were acquired by purchase, and 36 presented. Among the latter is an English-Tamil Dictionary (without name of author) "printed and completely done at Vepery near Madras in the year 1786", transferred to the library from the office of the Collector of Gódávari. The Collector, Mr. J. J. Cotton, in presenting the copy writes as follows:—"This particular dictionary I have never seen or heard of before,

though I have looked carefully through the Tamil books at the Indian Institute, Oxford, and elsewhere. The book is a rarity and is as interesting for the quaint English words found in it, as for anything else".

The first supplement to Volume I. of the Catalogue (according to authors' names) was issued during the year under report.

I append a list of the books issued during the last two years, under the various subject catalogue heads:—

	1907–1908.	1908–1909.
Anatomy; biology; natural history; zoology	810	640
Anthropology; folklore	732	707
Archæology; architecture	506	218
Arts; industries	1,103	1,319
Atlases; maps	122	111
Belles lettres	1,847	3,200
Botany; arboriculture; horticulture	183	263
Chemistry; agriculture; photography	248	379
Classics	373	109
Dictionaries; encyclopædias; gazetteers; manuals	3,871	2,422
Economic products	195	104
Education; ethics; logic	..	1,397
Exhibitions	59	28
Forestry; timbers	48	62
Geography; physical geography; physiography	155	217
Geology	..	206
History	2,220	2,627
Jurisprudence	484	548
Medicine; surgery; pathology	379	335
Microscopy	65	33
Mineralogy; metallurgy	107	49
Natural philosophy	538	456
Numismatics; medals; heraldry	76	107
Philology; epigraphy	498	449
Photographs	35	229
Physiology	301	347
Public health	102	48
Religion	939	1,206
Sport and games	331	262
Travels; voyages	..	457
Vernacular languages	116	206
Fort St. George Gazette (other than current issues)	638	493

13. UNIVERSITY LIBRARY.—Messrs. Henry Sotheran & Co., London, have been appointed agents for the acquisition of books for this Library.

Books recommended by the following Boards of Studies were received during the year under review:—

English.
Sanskrit, etc.
Mathematics and Natural Philosophy.
Physical Science.
History.
Medicine.

A catalogue of books, relating to the subjects of History, Economics, Politics, and Sociology, which are available in the combined Connemara and University Libraries, has been published.

14. VALUABLE STOCK.—The necessary inventory was maintained, and duly checked.

APPENDIX A.

Donations, 1908–1909.

Anantapur, Collector—
Seven hundred and eleven lead Andhra coins.

Asiatic Society of Bengal—
Six silver coins of the Græco-Bactrian king Apollodotus II Philopator, found in the Dehra Ghazi Khan district.
Nineteen copper coins of Bahlal Lodi and Sikandar Lodi, found in the Hissar district.
Five silver coins of Muhammad Shah, Ahmad Shah Bahadur, and Alamgir II, found in the Muzaffarpur district.
Two silver coins of Alamgir II, found in the Saran district.
A Buddhist coin or perhaps medal struck for deposit in stupas, found in the Yamethin district.
Two silver coins of the kings of Kashmir and of Babar, found in the Gujrat district.

Assistant Archæological Superintendent for Epigraphy—
Eight sets of copper plate inscriptions.

Bellary, Collector—
Two statues cut in black marble, found in the village of Pedda Tumbalam, Adóni taluk.

Central Provinces, Director of Agriculture—
Two silver coins of Shah Alam II, found in the Sagar district, Balanagar Garh mint, and Roshanagar Sagar mint.
Two silver coins. One Mohamad Shah, Surat mint; one Ahmad Shah Bahadur, Katak mint, found in the Bhandara district.
One copper coin. Hasan Shah, Haiderabad mint, found in the Hoshangabad district.
Three silver coins. Moghul (Shah Alam), Benares mint, found in the Jubbulpore district.
Fourteen silver coins of Aurangzib, Bijapur mint (one), Sholapur mint (one), Surat mint (twelve).
Two gold coins of the Ganga dynasty of Kalinga, 1075–1146 A.D., found in the Raipur district, Central Provinces.

Central Provinces, First Assistant Agent to the Governor-General—
One copper coin, found at Kotar village, Raghurajnagar tahsil, Rewa.

Coimbatore South, District Forest-officer—
Fruit of *Lagerstræmia lanceolata*.

Corporation, Madras—
Leopard cub (*Felis pardus*).
Lion (*Felis leo*).
Black swan.

Cuddapah, Collector—
Twenty-one gold coins.

Cumming, Mr. A. R., I.C.S.—
Tasar silk moth (*Actias selene*).

Devarajulu, Mr. S. A.—
Tortoise.

Donovan, Major C., I.M.S.—
Bird (*Coccystes coromandus*).

Eastern Bengal and Assam, Government—
Fifty-three silver Assamese coins, found in the Jorhat sub-division, Sibsagar district.

Govindan, Mr. V.—
Fisherman's hat from the Laccadive Islands.

Guntúr, Collector—
Marble cup with a Brâhmi inscription, from Garikopâdu Agrahara, Guntúr district.

Henderson, Mr. C. A., I.C.S.—
Collection of jewelry and clothing of Gadabas and Bonda Porojas.

Hosur, Sub-Collector—
Three lead beads or bullets, found in the hill fort of Jagadevi, Krishnagiri taluk.

Krishnasawmy Aiyangar, Mr. B. R.—
Twenty-seven copper coins.

Lahore, Central Museum, Curator—
Forty-five coins.

Lakshminarayan, Mr. P.—
Tortoise beetle.

Mervyn Smith, Mr. A.—
Magnesite (matrix of chrome ore) from Nunjungode, Mysore Province.

Murray, Mr. J. J. F.—
Two tortoises.

Proprietor, Victoria Hotel, Madras—
Snake (*Oligodon subgriseus*).

Ramachandra Aiyar, Mr. A. V.—
Cocoon of the tasar silk moth.

Rea, Mr. A.—
Sixty-eight copper Eastern Chalukya coins.
One lead Andhra coin.
Two small thin gold plates.
One gold Gupta coin.

Royal Asiatic Society, Bombay Branch—
Three silver coins of the Traikutaka king Dahragana, found in the Indapur taluk, Poona district.
One silver coin of the second Bahmini king Muhammad Shah I. Ghazi, found in the Belgaum district.
Twelve silver coins of Aurangzib, found in the Ahmadnagar district.
One silver coin of Shah Jahan.
Eight silver coins of Aurangzib, found in the Nasik district.
One silver coin of the Peshwas, found in the Poona district.
One gold Sassanian coin, found in the Larkana district (Sind).
Two silver coins of Native States, found in the Belgaum district.
Three silver coins, one of Jehangir, one of Shah Jehan, and one of Aurangzib, found in the Poona district.
One gold coin of Muhammad Bin Taghlak.
One silver coin of Alauddin Muhammad Shah.
One silver coin of Aurangzib.
One silver coin of Farrukh Siyar.
One silver coin of Muhammad Shah, found in Mahim taluk, Thana district.

Shillong, Curator Government Coin Cabinet—
Three coins of Aurangzib, found in Dacca: Akbarnagar 42nd year, Jahangirnagar 44th year, Jahangirnagar 47th year.

South Arcot, Collector—
Fifty copper coins.

Superintendent, Archæological Survey, Northern Circle—
Five inscribed clay sealings, found in excavation on the ancient site of Kassia, Gorakhpur district.

Tanjore, Collector—
Two stone Buddhist images.

United Provinces, Government—
Three copper coins of Bhoja Deva, found in the Kheri district.
One coin found in the Kheri district (Shah Alam, Ahmadnagar Farrukhábad mint).
Three rupees of Muhammad Shah, Jahanabád mint, found in the Bahraich district.
One hundred Moghul coins of Akbar, etc., found in the Jhansi district.
Six coins of Lucknow, found in the Lucknow district.
Nine copper coins of the Patan Sultans of Delhi, found in the Jhansi district.
A gold mohur of Muhammad Bin Taghlak, found in the Muttra district.
Two coins, found in the Saharanpur district.
Four coins, found in the Shahjahanpur district.
Five coins, found in the Gonda district.
One coin, found in the Pilibhit district.
Twenty-eight silver coins, found in the Moradabad district.
One gold coin found in the Jhansi district.

Venkoba Rao, Mr. S.—
Fifty-two copper coins of Muhammad Taghlak, found in the foundation of a ruined house in Kudligi village, Bellary district.

Wood, Mr. C. W.—
An earthenware pot dug up at Sholinghur.

APPENDIX B.

CLASSIFIED list of Expenditure of the Government Museum during the year 1908–1909.

	Actuals, 1908–1909.	Revised estimate, 1908–1909.
	RS.	RS
Salaries—		
Superintendent	8,652	9,600
Exchange compensation allowance	465	600
Local allowance	1,858	2,400
Total	10,975	12,600
Permanent establishment, Government Museum—		
Herbarium keeper, first assistant, second assistant, senior and second taxidermists, writer, assistant writer and 26 peons—33 persons		
Permanent non-pensionable establishment, Government Museum—	7,900	7,860
Three gardeners, three sweepers, six watchmen, water pandal Brahman, latrine sweeper, punkah-puller and chockra—16 persons		
Famine batta	888	750
Honoraria	500	..
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons—6 persons		
Permanent non-pensionable establishment, Connemara Public Library—	2,295	1,930
Servant (sweeper)—1 person		
Famine batta	127	60
Bonus in commemoration of the fiftieth anniversary of the assumption of the Government of India by the Crown.	114	131
Temporary establishment	20	..
Total, Establishment	11,844	10,731
Allowances—		
Travelling allowance	525	1,300
Supplies and Services—		
Cost of specimens purchased on tour	502	..
Objects of interest and coins purchased at head-quarters	911	..
Fittings, furniture, etc., for the collection	1,794	..
Cost of books and publications	893	..
Library	2,168	..
Lithographic plates	592	..
Ammunition	15	..
Charges for feeding live animals	203	..
Expenses—reading coins	6	..
Cost of illustrations for the carpet monograph	1,545	..
Total, Supplies and Services	8,629	8,600

	Actuals, 1908–1909.	Revised estimate, 1908–1909.
	RS.	RS.
Contingencies—		
Purchase of furniture (Europe stores)	.. *	..
Tour charges	216	..
Repairs to furniture	99	..
Cleaning charges	11	..
Postage and telegraph charges	102	..
Telephone charges	.. *	..
Rents, rates and taxes	4,473	..
Office expenses including such articles as gum pots, rat traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vinegar, water-pots, ropes, and match boxes	621	..
Total, Contingencies ..	5,522	5,969
Marine Aquarium—		
Establishment—		
Second keeper and two servants—3 persons	67	..
Famine batta	14	..
Bonus of one week's pay	5	..
Supplies and Services—		
Food for animals	27	..
Contingencies—		
Tour charges	146	..
Office expenses	8	..
Miscellaneous	125	..
Total, Marine Aquarium ..	392	..
Grand Total ..	37,887	39,200

* Figures are not available.

Order—No. 492, Educational, dated 25th August 1909.

Recorded.

2. The thanks of Government are due to the persons who made donations to the Museum during the year.

(True Extract.)

W. FRANCIS,
Ag. Secretary to Government.

MADRAS: PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS.

REPORT ON THE ADMINISTRATION

OF THE

GOVERNMENT MUSEUM AND CONNEMARA PUBLIC LIBRARY

FOR THE YEAR

1909-1910.

Not for sale.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper :—

Letter—from J. R. HENDERSON, Esq., M.B.C.M., F.L.S., Acting Superintendent, Government Museum, Madras.
To—the Secretary to Government, Educational Department.
Dated—the 7th July 1910.
No.—426.

I have the honour to forward, for submission to His Excellency the Governor in Council, the report on the working of the Government Museum, the Marine Aquarium and the Connemara Public Library during the year 1909-1910, and to request that I may be supplied with 160 copies for distribution to other Museums, etc.

ENCLOSURE.

Administration Report of the Madras Government Museum, etc., for 1909-1910.

Mr. Thurston, the permanent Superintendent, continued to be on leave throughout the year. By G.O., No. 119, Educational, dated 12th March 1910, he has been permitted to retire from the public service with effect from the termination of his leave in July 1910.

2. VISITORS.—The total numbers of visitors to the old and new buildings were 413,726 and 387,077, against 529,663 and 521,720, respectively, in 1908-1909. While these numbers are quite up to the average of recent years they suffer by comparison with a year in which the numbers were exceptionally large. The largest number of visitors on a single day was 41,665 to the old and 28,057 to the new building, on 16th January (Kannu Pongal). The total numbers of visitors on Sundays were 112,318 to the old and 98,418 to the new building, against 151,496 and 138,106, respectively, in the previous year. The number of Gosha females who visited the Museum on the days set apart for them (the first Saturday in each month) was 14,098, against 13,269 in 1908-1909.

The Museum was visited during the year by Her Excellency Lady Lawley, the Lord Bishop of Southwark, Prince and Princess Louis d'Orléans and Princes Antoine d'Orléans and Germano de Bourbon.

A party of members of the Madras Teachers' Guild was personally conducted round the Museum by myself.

3. LECTURES.—A course of eight lectures on "the study of Indian animal life" was delivered during the Christmas holidays to teachers in European and Training Schools from various parts of the Presidency. The lectures were held in the old theatre of the Museum and were illustrated to a large extent by specimens from the Museum collections.

4. BUILDINGS.—The construction of the proposed annexes to the Sculpture and Economic galleries, and the new Clerks' Office, has been approved by the Government. The preparation of detailed plans and estimates is now engaging the attention of the Public Works Department, and it is hoped that the construction will be put in hand at as early a date as possible.

5. THEATRE.—The theatre was provided with an electric light installation connected with the Madras Electric Supply Corporation's main in the Pantheon Road, thus ensuring a great improvement in the lighting, and diminished risk to the building from fire. The theatre was used on thirteen occasions during the year as follows :—

Amateur Dramatic Society's entertainments	10
Collegiate School prize distribution	1
Presidency Training School for Mistresses prize distribution	1
Recital on behalf of the Civil Orphan Asylum	1

6. PUBLICATIONS.—Mr. Thurston's encyclopædic work on "The Castes and Tribes of Southern India" (in seven volumes) referred to in the last annual report was issued during the year.

7. HISTORICAL.—Two old cannon were received from the Central Jail at Trichinopoly. They are believed to have been taken from the French by the English troops, European and native, commanded by Major Stringer Lawrence, on the 21st September 1753, at the battle of the Sugar-loaf Rock, when the French troops under the command of M. Astruc were defeated with a loss of eleven guns. The rock so designated by Orme and other writers is now known locally as the Golden Rock, and the Central Jail is in its immediate vicinity. Both guns have lost their trunnions, one its muzzle, and the smaller one is spiked; both are flattened on one side, probably as the result of ryots sharpening tools on them. They bear no inscriptions, and are without any local history or tradition; but from the circumstances of their find, and from the fact that one of them is spiked, there can be little doubt that they are relics of this important engagement.

A photograph of Elihu Yale (Governor of Fort St. George, 1687–92) from the painting executed in 1717, now preserved at Yale College, was presented by Mr. Thurston.

A bronze sun-dial, marked S.S.G. 1817, connected with Ootacamund in its early days was presented by Sir Frederick Price, K.C.S.I. It was formerly placed in front of a house erected by Assistant Surgeon Glen of the Bombay Army about 1833, on the site of which Trengwainton now stands.

8. ARCHÆOLOGY AND ART.—The golden casket with a fragment of bone and six golden flowers, found at the Buddhist Stupa in Amarávati and referred to in the last annual report as having been sent to the Collector of Guntúr in connection with proceedings taken under the Indian Treasure Trove Act, was returned during the year for deposit in the Museum.

Two copper plates produced by parties in a suit before the High Court, and not claimed by them, were forwarded to the Museum on the suggestion of the Assistant Archæological Superintendent for Epigraphy, Southern Circle. This officer reports as follows:—"The bigger of the two copper plates is dated in Saka 1662, Rudhirodgarin. The cyclic year given is wrong, according to Mr. Sewell's Indian Calendar. The plate records a gift of land made by certain private individuals to the Siva temple at Tirumalapadi, 'in accordance with a copper plate charter granted on a former occasion by Vijaya Oppilada Malavaraya'. Inscriptions copied by this department at Tirumalavadi (Nos. 70 to 99 of the Epigraphical collection for 1895) do not refer to any such person as Oppilada Malavaraya." While these copper-plates are of no historical importance they are interesting specimens of 18th century work.

A copper treasure chest of cast metal (measuring in inches $29 \times 16 \times 13$) found buried underground in the Tiruvalangadu temple, North Arcot district, was acquired under the Treasure Trove Act. It contained a number of jewels used for decorating idols, and is of considerable artistic merit, but unfortunately there is no indication of its age.

Treasure trove copper or bronze images were received during the year from the Buddhist Stupa at Amarávati, and from the villages of Mandikulam in the Tinnevelly district, and Koilpattu, Sikkil and Kanjanagaram in the Tanjore district.

9. ANTHROPOLOGY.—Among the additions to the ethnological section may be noted the following:—

(1) A model representing the procession of Bhadrakali at Trichur and other temples in the Cochin State. The deity is carried by the central one of three elephants, which are preceded by the bearers of the sacred lamps and by musicians.

(2) A brass plate received from the Collector of North Arcot. The Assistant Archæological Superintendent for Epigraphy, Southern Circle, has kindly furnished me with the following note on this plate:—"The brass plate in question is perhaps one of a series of forgeries compiled by the Idaṅgai-faction in its zeal to justify its preference over the Valaṅgai in matters social. The dates given, *viz.*, Śáka 1095 and Kali 4421 do not correspond. Nevertheless the story related of how the car procession of Kāmākshi-Amman at Conjeeveram was successfully managed by the Idaṅgai-Kammāḷans in spite of the obstacles thrown in its way by their opponents of

the Valaṅgai-section and how in this matter the Kambaḷattāns from Malabar helped the former by their ingenuity in exorcism, has its own interest to the ethnologist. In the Madras Manual of Administration (Vol III, p. 249) the Kambaḷattāns are described as 'a sub-division of the Vadoogar specially addicted to magic' ".

(3) A representative collection of iron styles or *lekhanis* and of reeds used for writing purposes in the various districts of the Presidency. They were supplied by Collectors at the instance of the Board of Revenue who had already supplied a similar collection to the Reporter on Economic Products, India. It may be noted that a monograph on "Indian Pens: their history, classification, materials used and methods of manufacture" chiefly based on the latter collection, has been published in the Vegetable Product series of the *Agricultural Ledger* (No. 6 of 1908–09).

10. NUMISMATICS.—The following coins were acquired under the Indian Treasure Trove Act:—

(1) A Sultani pagoda of Tipu Sultan (struck at Nagar in the second year) and eighty-four gold fanams from Coorg. This find comprised a few of Tipu's fanams struck at Pattan, Nagar, and Kalikut, but the majority of the coins belong to an undescribed type of fanam bearing on the obverse a rudely executed standing figure of a God (Vishnu?) with symbols in his four hands, and on the reverse a standing figure (Garuda?) and a lamp. The dynasty by which these coins were issued is unknown.

(2) A find of silver coins from Malabar. It comprises forty-seven fanams struck at Pondicherry for use at Mahé and the French Settlements on the West Coast (obverse "Frans Kumpani," reverse "Bhulcheri" and the letter P) several of which bear complete dates, eleven East India Company one-fifth rupees struck at Bombay for use at Cannanore, and four dated fanams of an Ali Raja of Cannanore.

(3) A number of South Indian gold fanams from South Arcot. They bear on the obverse the so-called Kali symbol, while the reverse is plain.

(4) A number of coins struck by the East India Company and belonging to well-known types, from Cuddapah and Tanjore. They consist of "three swami" pagodas in gold, and of quarter pagodas, rupees, half rupees and quarter rupees in silver.

Two silver coins (denarii) which are of considerable interest inasmuch as they belong to types not previously represented in the Museum collection of Roman coins found in Southern India, were received from the Collector of Coimbatore. Both unfortunately are in a poor state of preservation. One is a coin of the Cassia family, and on the reverse under a device which is too worn to be made out, is the legend Q. CASSIVS (probably Quintus Cassius Longinus, B.C. 60); from the other the inscriptions have been entirely worn away, but the reverse shows a bull charging to the right, and the coin is probably one of Augustus (B.C. 29—A.D. 14). The two coins are said to have been found with some other silver and gold coins and jewels, in an earthenware pot, obtained in the course of digging and levelling the raised portions of a field in the village of Kallakinar in the Palladam taluk. They came to the Collector for disposal in connection with a criminal case on the file of one of his Sub-Magistrates. The police were unable to trace the other coins and jewels referred to.

Two copper coins obtained near Jaugada hill in the Ganjám district were presented to the Museum by the Assistant Superintendent for Epigraphy, Southern Circle. They bear on one side a rudely executed standing figure, with the left arm raised and the right arm hanging down; the other side exhibits a similar figure with a crescent to its left. These coins belong to the type figured by Mr. V. A. Smith in his *Catalogue of Coins in the Indian Museum, Calcutta*, plate XIV, No. 14, which he attributes to the kings of Kalinga (Puri and Ganjám) of the fourth or fifth century A.D.

The collection of coins struck by the Danes at Tranquebar received a large accession in the form of forty new varieties in silver, copper, and lead, which were acquired by purchase.

A report was drawn up for the Asiatic Society of Bengal on a find of one hundred and eighty-one gold pagodas of the Vijayanagar kingdom, from the Central Provinces.

To the Burma Government, the Eastern Bengal and Assam Government, the Central Provinces Government, the United Provinces Government, the Mysore Darbar, and the Bombay Branch of the Royal Asiatic Society, the Museum was indebted for many coins presented to it in the course of the year.

The coins acquired under the Indian Treasure Trove Act during the year under report and in the previous year were distributed in accordance with the rules to regulate proceedings under the Act appended to G.O., No. 604, Public, dated 26th July 1907.

11. Economic and Botanical.—The Herbarium-keeper toured in the Tanjore, Madura and Tinnevelly districts in September, and in Travancore in March, in order to collect specimens and to photograph objects of interest, more particularly growing plants of economic importance. As a result a considerable number of specimens and of photographs were added to the collection.

Samples of Para, Castilloa and Ceara rubbers, grown on the Nilgiris, were exhibited along with enlarged photographs showing rubber trees and the process of tapping.

A collection of varieties of sugar-cane from the Government Farm, Samalkota, and a series of vegetable specimens, chiefly medicinal, all of which are preserved in formalin solution, were exhibited during the year.

12. Geology and Mineralogy.—The chief additions made during the year to this section of the Museum were as follows:—

(1) Sand containing monazite from South Travancore. This mineral, a phosphate of the cerium metals, is of considerable commercial importance as a source of the ceria and thoria required for incandescent gas mantles.

(2) Samarskite from the Mica Mines, Nellore. A rare mineral, which in addition to iron, contains tantalum, niobium, cerium, yttrium and other rare elements. Its chief importance lies in the fact that it contains radium.

(3) Samples of plumbago, of good quality, from the zamindari of Singampatti, Tinnevelly district.

13. Natural History.—In the course of a prolonged tour which I made to the Palni Hills extensive collections were made, particularly of insects, and a selection of the latter was sent to Pusa for identification. The Museum collection of South Indian butterflies has been rearranged during the year, and the specimens relabelled according to Lieut.-Col. Bingham's recent work; many old specimens have been replaced by fresh ones, and a considerable number added—chiefly from the Palnis—which were previously unrepresented.

Among the more important additions to this section may be noted:—

(*a*) Brown Palm-civet (*Paradoxurus jerdoni*), from the Palnis. According to Blanford who first described this little-known "toddy cat" it is "only known with certainty from the Palni hills in Madura and the Nilgiris". It was previously unrepresented in the collection.

(*b*) South Indian Hedgehog (*Erinaceus micropus*); a specimen captured alive in a compound at Egmore. Although the species has been recorded from the neighbourhood of Madras no recent record of its capture is known, and the one in question had possibly escaped from captivity.

(*c*) Little Scaly-bellied Green Wood-pecker (*Gecinus striolatus*), and Tickell's Golden-backed Wood-pecker (*Chrysocolaptes guttlcristatus*) both from the Palnis, and both new to the collection.

(*d*) *Rhinophis travancoricus*, Boulenger. A specimen of this comparatively recent addition to the Indian snake fauna, hitherto only known from Travancore, was received from Cochin. Unlike the majority of earth-snakes it is found on the low country at no great distance from the sea.

(*e*) *Phrynichus phipsoni*, Pocock. A "scorpion-spider" previously only known from Bombay, Travancore, and the Shevaroys, received from Vizianagram.

(*f*) *Rhagodes nigrocinctus*, Bernard. A rare arachnid received from Vellore, the only known locality for the species.

14. Marine Aquarium.—In the last annual report it was stated: "The Marine Aquarium building was taken over from the Public Works Department on 3rd November, and since then the work has been mainly experimental. Unforseen difficulties, mainly concerned with the æration of the water, have been experienced,

but at the close of the year under review the tanks were stocked with fish and they appear to be thriving . . . . The Committee have decided to continue the experimental stage during the hot weather of 1909, and later in the year it is proposed to throw the Aquarium open to the public." The Aquarium was eventually opened on 21st October, and the novelty of the display has continued to attract large numbers of visitors. A draughtsman has been employed to make coloured sketches of the fish, and these duly labelled with the scientific and Tamil names of the various species will be exhibited over the tanks. A small guide book will also be issued.

Except on Fridays when the Aquarium is closed to the public, the hours of admission under G.O., No. 556, Educational, dated 22nd August 1906, were from 7 A.M. to 6 P.M. on Wednesdays, and from 10 A.M. to 6 P.M. on all other days except Sunday, when visitors were not admitted after 5 P.M. The last Monday of each month, from 12 noon to 6 P.M., was set apart for gosha ladies. In order to prevent overcrowding in such a small place, the Government considered that a charge should be levied from visitors, and fixed the following rates :—four annas on Wednesdays, and six pies on all other days.

The number of visitors from 21st October 1909 to 31st March 1910, was 100,463, and the amount realized in admission fees was Rs. 3,330–4–6. The largest number of visitors on a single day was 3,436 on 16th January (Kannu Pongal). The total numbers of visitors on Wednesdays, and the days set apart for gosha ladies, were 832 and 2,182 respectively.

The Aquarium was visited by His Excellency the Governor, and by Her Excellency Lady Minto.

A short account of the Aquarium which appeared in " Nature " will be found in Appendix B.

15. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 19,204, against 18,663 in 1908–1909.

Largest number of readers in a day	..	..	176
Smallest " "	..	..	15
Largest " on Sunday	..	..	171
Smallest " "	..	..	58

The number of standard works added to the library was 306, of which 257 were purchased and the rest presented. Among the latter is a cop of the original edition, published in 1812, of the celebrated " Fifth Report on the Affairs of the East India Company," presented by Sir Frederick Price, K.C.S.I., and believed to have formerly belonged to Sir Thomas Munro. A scarce little book acquired by purchase bears the quaint title " An Essay upon Friendship; Deliver'd with a View to an Unhappy Gentleman, dec^{d}, and a Monster just strip'd of Power, which he has abus'd, and is lately return'd to England. By a Faithful Servant and Soldier of his Majesty's. London : Printed in the Year MDCCXXV." The unhappy gentleman referred to was Francis Hastings, Governor of Fort St. George, 1720–21, who dismissed by the Company, died in Madras while under arrest on 15th December 1721. The " monster " was Nathaniel Elwick, Governor of Fort St. George, 1721–25, who is said to have compassed the ruin of Hastings.

On the recommendation of the Board of Scientific Advice, the Government, by G.O., No. 61, Educational, dated 3rd February 1910, directed the supply to the library of certain additional scientific periodicals.

A statement of the number of books issued to readers during the last two years, under the various subject catalogue heads, is subjoined :—

	1908–1909.	1909–1910.
Anatomy; biology; natural history; zoology	640	715
Anthropology; folklore	707	462
Archæology; architecture	218	193
Arts; industries	1,319	1,321
Atlases; maps	111	103
Belles lettres	3,200	4,418
Botany; arboriculture; horticulture	263	229
Chemistry; agriculture; photography	379	383
Classics	109	135
Dictionaries; encyclopædias; gazetteers; manuals ..	2,422	4,988
Economic products	104	69
Education; ethics; logic	1,397	776

	1908-1909.	1909-1910.
Exhibitions	28	35
Forestry; timbers	62	37
Geography; physical geography; physiography	217	170
Geology	206	87
History	2,627	2,803
Jurisprudence	548	452
Medicine; surgery; pathology	335	316
Microscopy	33	26
Mineralogy; metallurgy	49	141
Natural philosophy	456	685
Numismatics; medals; heraldry	107	81
Philology; epigraphy	449	1,517
Photographs	229	101
Physiology	347	174
Public health	48	117
Religion	1,206	793
Sport and games	262	316
Travels; voyages	457	212
Vernacular languages	206	119
Fort St. George Gazette (other than current issues) ..	493	503

16. UNIVERSITY LIBRARY.—Books recommended by the following Boards of Studies were received during the year under review :—

Arabic.	Mental and Moral Science.
Dravidian languages.	Natural Science.
Law.	Teaching.

The several Boards of Studies were requested to send in supplemental lists of books to be acquired, and such of them as had been received were either under consideration or order.

Manuscript slips for a catalogue (arranged according to authors' names) of the books in the University library were under preparation; and the preparation of subject indexes of the books available in the combined Connemara and University libraries engaged the attention of the University Library Committee and the several Boards of Studies. The catalogue and the subject indexes will be issued with the least practicable delay.

17. VALUABLE STOCK.—The necessary inventory was maintained, and duly checked.

18. The usual list of donations and statement of expenditure are appended.

APPENDIX A.

DONATIONS, 1909-1910.

Anantapur, Collector—

Two pieces of a stone treasure receptacle found in Velamakur village, Tadpatri taluk.

Assistant Archæological Superintendent for Epigraphy, Southern Circle—

Two copper coins from Jaugada.

Atkinson, Hon'ble Mr. J. N., I.C.S., C.S.I.—

South Indian Hedgehog (*Erinaceus micropus*).

Bellary, District Forest Officer—

Wood and bark of *Ehretia lævis*.

Benson, Surgeon-General, P. H.—

Miscellaneous copper coins.

Board of Revenue, Madras—

Writing styles and reed pens.

Central Provinces, Director of Agriculture—

Forty-one copper coins of Muhammad Shah.

Three copper coins of Muhammad Shah.

Seven silver coins and one copper coin found in the Hoshangabad district.

Cherry, Mr. C. G.—

Sea snake (*Enhydrina valakadyn*).

Conservator of Forests, Southern Circle—

Derris scandens—fibre and bark.
Flacourtia ramontchi—fruit.

Corporation, Madras—

Leopard (*Felis pardus*).
Indian Chevrotain or Mouse deer (*Tragulus meminna*).
Black swan (*Cygnus atratus*).

Eastern Bengal and Assam Government—

Four silver coins found in the Lakhimpur district.

Entomologist, Imperial, Agricultural Research Institute, Pusa—

Coloured plates of insect pests together with printed explanation of the plates.

Fraser, Mr. Gordon—

Snake (*Oligodon subgriseus*).

Govindan, Mr. V.—

Live turtle (*Chelone mydas*) from Ennore.

High Court of Judicature, Madras, Registrar—

Two copper plates.

Holman, Mr. D.—

Coffer fish (*Ostracion turritus*).

Johnston, Mr. R. H. A.—

Snake (*Callophis trimaculatus*) from Trichinopoly.

Johnston, Mr. W. H.—

Scorpion-spider (*Phrynichus phipsoni*) from Vizianagram.

Masilamony, Mr. J. S.—

Living Mottled Wood Owl (*Syrnium ocellatum*).

Matthai, Mr. George.—

Snake (*Rhinophis travancoricus*) from Cochin.

Montgomery, Mr. W. D.—

Flying lizard (*Draco dusumierii*) from the Cardamom Hills, Travancore.

Mysore Darbar—

Three gold Vijayanagar coins.

Nellore, Collector—

Samarskite, from the Mica Mines.

Nicholson, Rev. S.—

Two Andhra lead coins from Koilkuntla taluk, Cuddapah district.

North Arcot, Collector—

Brass plate.

Oakes, Major G. R., I.A.—

Viper (*Lachesis macrolepis*) from Kodaikánal.

Oliver, Mr. N. R. B.—

Snake (*Tropidonotus piscator*).

Price, Sir Frederick, K.C.S.I.—

Old sun dial from Ootacamund.

Ratnavelu, Mr. B. S.—

Arachnid (*Rhagodes nigrocinctus*, Bernard) found at Vellore.

Royal Asiatic Society, Bombay Branch—

Two silver coins of Native States, with fragments of legends of later Moghul Emperors, found in the Satara district.

One coin of Muhammad Shah found at Korphal, Barsi taluka.

Three silver coins of Moghul Emperors :—

One of Aurangzib, one of Muhammad Shah, and one of Alamgir, found in Man taluka, Satara district.

Two gold coins of the Vijayanagar dynasty of Southern India, found in Barsi taluka, Sholapur.

Three silver coins of Native States.

Two East India Company's Rupees found at Alwal, Sindgi taluka, Bijapur district.

Four gold coins found in the Satara district.

Four silver coins of Mahmud III.—Gujarat Saltanah.

Shutie, Mr. S. D.—

Russell's Viper (*Vipera russellii*).

Singampatti, Zamindar of—
Plumbago samples.
Spencer, Mr. H. M.
Caterpillar.
Stone, Mr. J. H.—
Model of the procession of Bhadrakali at Trichur and other temples in the Cochin State.
Superintendent, Archæological Survey, Burma—
Two ancient Arakanese silver coins.
Superintendent, Central Jail, Trichinopoly—
Stone specimen (block of gneiss).
Superintendent, District Jail, Berhampore—
Burmese bell.
Thurston, Mr. Edgar, C.I.E.
Photograph of Elihu Yale from a painting.
United Provinces, Government—
Seven silver coins found in the Rai Barili district.
Three silver coins found in the Bara Banki district.
Two silver coins found in the Rai Barili district.
von Schomburg, Mr. C. W.
Monazite sand from South Travancore.
Waddington, Mr. H.—
Quarter paisa of Tipu Sultan struck at Khaliqabad (Dindigal).

APPENDIX B.

The Marine Aquarium, Madras.

Extract from "Nature" dated 3rd February 1910.

The Marine Aquarium at Madras, which has recently been thrown open to the public, deserves notice as it is the first institution of its kind in India, if, indeed, it is not the first in the tropics. It owes its inception to Lord Ampthill, who, while Governor of Madras some four years ago, drew up in conjunction with Mr. Edgar Thurston, Superintendent of the Madras Museum, the first rough plan of a public aquarium. The building, a low, unpretentious brick edifice, is situated on the seaward side of the famed Madras Marina, less than a hundred yards from the sea. The main entrance leads into a large paved area with a central fresh-water pond and fountain, and on either side five tanks with plate-glass fronts, lit from above, each measuring $7 \times 3 \times 3\frac{1}{2}$ feet. The entire seaward side of the central area is occupied by a large open tank at present stocked with turtles (*Chelone mydas*). On either side of the entrance passage are two rooms designed for committee meetings, storage of materials, etc., and one of them is occupied at present by the aeration plant.

With the exception of two tanks for fresh-water fish (at present containing species of *Megalops*, *Ophiocephalus*, *Notopterus*, etc.,) which are oxygenated by living *Vallisneria*, the remaining eight contain salt water, which circulates from tank to tank, and in addition are supplied with air from two compression cylinders, forced into each tank through a filter candle. At present the cylinders are filled by hand pumps, but the use of an oil engine is contemplated Sea water is conveyed to a covered well in the rear of the aquarium along a pipe filled by hand at the seaward end. From the well it is pumped into filter-beds, and from these passes to large elevated cisterns, whence it is distributed to the tanks. The shore water on the Madras coast is so disturbed by the surf that this filtration is unavoidable, though the removal thereby of small organisms is undoubtedly a drawback. The water which has circulated through the aquarium tanks can, if desired, be brought back to the filter-beds and used a second time.

The Director of the Aquarium is the Superintendent of the Madras Museum, and he is assisted by a local committee. A small admission fee is charged, and already there are signs of the place becoming very popular, more than 1,100 visitors having been admitted on a single day. The magnificent colours of many of the fish, in particular, form a most attractive display. The exhibits include sea-snakes (*Enhydrina* and species of *Distira*) and among the fish species of the following :—*Ginglymostoma*, *Stegostoma*, *Chiloscyllium*, *Muraena*, *Arius*, *Therapon*, *Serranus*, *Lutjanus*, *Myripristis*, *Trachynotus*, *Pterois*, *Caranx*, *Antennarius*, *Heniochus*, *Julis*, *Teuthis*, *Balistes*, *Tetrodon*. The invertebrates comprise cuttle-fish, holothurians, hermit-crabs (*Clibanarius*), swimming crabs (*Scylla* and *Neptunus*), lobsters (*Panulirus*), prawns (*Penæus*), etc. All the specimens have been taken on the Madras coast within a few miles of the Aquarium.

APPENDIX C.

CLASSIFIED list of expenditure of the Government Museum, Connemara Library, and Marine Aquarium, during the year 1909–1910.

Government Museum and Connemara Library.

	Actuals, 1909–1910.	Revised estimate, 1909–1910.
	RS.	RS.
Salaries—		
Superintendent	5,400	5,737
Exchange compensation allowance	..	48
Local allowance	..	193
Total	5,400	5,978
Permanent establishment, Government Museum—		
Herbarium keeper, first assistant, second assistant, senior and second taxidermists, writer, assistant writer and 26 peons—33 persons	7,856	7,857
Permanent non-pensionable establishment, Government Museum—		
Three gardeners, three sweepers, six watchmen, water pandal Brahman, latrine sweeper, punkah-puller and chockra—16 persons		
Famine batta	894	900
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons—6 persons	2,106	2,090
Permanent non-pensionable establishment, Connemara Public Library—		
Servant (sweeper)—1 person		
Famine batta	144	135
Total, Establishment	11,000	10,982
Allowances—		
Travelling allowance	772	900
Supplies and Services—		
Cost of specimens purchased on tour	357	..
Objects of interest and coins purchased at head-quarters	717	
Fittings, furniture, etc., for the collection	1,359	
Cost of books and publications	889	
Library	2,402	6,740
Lithographic plates	15	
Ammunition	149	
Charges for feeding live animals	224	
Expenses—reading coins	3	
Total, Supplies and Services	6,115	6,740
Contingencies—		
Purchase and repair of furniture	108	
Tour charges	169	
Cleaning charges	22	
Postage and telegraph charges	91	6,000
Telephone charges	..	
Rents, rates and taxes	4,473	
Office expenses	587	
Freight	5	
Total, Contingencies	5,455	6,000

Marine Aquarium.

	Actuals, 1909-1910.	Revised estimate, 1909-1910.
	Rs.	Rs.
Permanent establishment, Marine Aquarium—		
Head-keeper, second keeper and two door-keepers—4 persons	281	615
Permanent non-pensionable establishment, Marine Aquarium—		
Night watchman, sweeper, two fishermen and fisher-boy—5 persons	330	
Temporary establishment	150	..
Famine batta	130	130
Total, Establishment ..	891	745
Supplies and Services—		
Food for animals	648	* 655
Total, Supplies and Services ..	648	655
Contingencies—		
Fittings	501	1,000
Tour charges	349	
Postage and Telegraph charges	..	
Office expenses	44	
Miscellaneous	15	
Rents, rates and taxes	294	
Purchase and repairs of furniture	23	
Total, Contingencies ..	1,226	1,000
Total, Marine Aquarium ..	2,765	2,400
Grand Total ..	31,507	33,000

* This includes fittings also.

Order—No. 423, Educational, dated 20th July 1910.

Recorded.

2. The thanks of Government are due to the persons who made donations to the Museum during the year.

3. The Governor in Council takes this opportunity to place on record his high appreciation of the services of Mr. Edgar Thurston who for the past 25 years has filled the post of Superintendent of the Museum with marked distinction and success.

(True Extract.)

L. M. WYNCH,
Ag. Secretary to Government.

To the Superintendent, Government Museum.
,, the Director of Public Instruction.
,, the Accountant-General.
,, the Public Department.
,, the Revenue Department.
,, the Public Works Department, with reference to paragraph 4 of the report.
,, the Director-General of Archæology (with C.L.).
,, Mr. E. Thurston.
Editors' Table.

REPORT ON THE ADMINISTRATION

OF THE

GOVERNMENT MUSEUM AND CONNEMARA PUBLIC LIBRARY

FOR THE YEAR

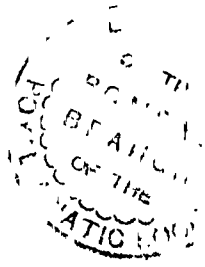
1910-1911.

Not for sale.

BOMBAY BRANCH
OF THE
Royal Asiatic Society.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.



READ—the following paper :—

Letter—from J. R. HENDERSON, Esq., M.B.C.M., F.L.S., Superintendent, Government Museum.
To—the Secretary to Government, Educational Department.
Dated—Madras, the 7th July 1911.
No.—490.

I have the honour, to forward for submission to His Excellency the Governor in Council, the report on the working of the Government Museum, the Marine Aquarium and the Connemara Public Library during the year 1910–1911, and to request that I may be supplied with 160 copies for distribution to other museums, etc.

ENCLOSURE.

Administration Report of the Madras Government Museum, etc., for 1910-1911.

Mr. Thurston continued on leave till his retirement from the public service on the 14th July 1910. When he first assumed charge in October 1885, the Government Museum consisted of what is now known as the Old Building and the collections were not confined to Indian exhibits. Mr. Thurston in his first annual report defined the present policy of the Museum in a sentence which I may be permitted to quote: "It is wholly beyond the power or scope of a presidential museum to rival the great "national museums in the possession of representative collections from different quar- "ters of the globe, and I have determined to devote my entire attention to the natural "history, arts, ethnology, manufactures and raw products of South India, accepting "only such specimens from other regions as may be sent as donations from time to "time, and keeping them entirely apart from the main collections." During his period of administration the Museum has undergone great development in every direction, and in particular the addition of the Connemara Public Library and the New Building in 1896, has greatly increased both the size and the scope of the institution. To his enthusiasm and discrimination the extent and the arrangement of the collections are due ; in his writings, more particularly those relating to anthropology and numismatics, he has left an enduring record of his work.

I continued to act as Superintendent and Principal Librarian throughout the year.

2. VISITORS.—The numbers during the year under review, as well as for the preceding year, were as follows :—

	1909–1910.	1910–1911.
Total number of visitors to the Old Building ..	413,726	444,837
Total number of visitors to the New Building ..	387,077	437,984
Largest number of visitors on a single day to the Old Building	41,665	77,723
Largest number of visitors on a single day to the New Building	28,057	79,084
Total number of visitors on Sundays to the Old Building	112,318	68,368
Total number of visitors on Sundays to the New Building	98,418	64,228
Total number of gosha female visitors (on the first Saturday in each month)	14,098	12,356

As usual Kannu Pongal (16th January) was the day on which the Museum was attended by the largest number of visitors. The apparent fall in the number of visitors on Sundays is accounted for by the fact that in 1910 Kannu Pongal fell on a Sunday.

3. BUILDINGS.—Detailed plans and estimates for extending the Sculpture and Economic Galleries and for building a new clerks' office have been submitted for the approval of Government. A considerable number of archæological specimens received during recent years are stored away for want of space in which to exhibit them.

4. THEATRE.—The Theatre was used on sixteen occasions during the year as follows:—

Amateur Dramatic Society's entertainments	9
Madras Musical Association's concerts	3
Lieut.-Col. vanGeyzel's concert in aid of the Gericke Hostel	1
Collegiate School prize distribution	1
Doveton Girls' School prize distribution	1
S.P.G. High School prize distribution	1

5. ESTABLISHMENT.—I record with regret the deaths which occurred during the year of the Second Assistant, A. B. Vijayaraghava Mudaliyar, and the junior taxidermist, P. Krishnan, after a service of twenty-five and nine years respectively.

6. HISTORICAL.—I am indebted to the Hon'ble Mr. H. E. Clerk for a plan of Madras at the time of its capture by the French under Mahé de la Bourdonnais on 21st September 1746, which he had received from Mr. Bligh, retired Executive Engineer, Public Works Department, now at Toronto, Canada. The plan, which has been framed and exhibited in the Connemara Public Library, is undated, but was engraved for the "Universal Magazine" probably not long after the date referred to. It shows that the course of the Cooum was very different in those days, and in other respects is a document of considerable local interest.

7. ARCHÆOLOGY AND ART.—Among the more noteworthy additions to this section are the following:—

(1) A number of stone images found in a fragmentary condition near a ruined Jain temple at Sultan's Battery in the Wynaad taluk, Malabar district. The present condition of the images is probably a result of the religious zeal of Tipu Sultan and unfortunately many of the fragments are missing. The following information regarding the temple is furnished in the District Gazetteer (1908):—"Hidden in a "lantana thicket a few yards south of the 60th mile stone on the Mysore road, its "very existence has been forgotten for many years The upper part has fallen down, "and the rest is fast falling into ruin, several trees having forced their way between "the great granite slabs of which it is built. There are no Jains now in Sultan's "Battery, but there are small colonies of them at Manantoddy, Kalpatta and other "places."

(2) Eight gold-plated sheets of copper with figures in high relief of Siva, Parvati and other personages of Hindu mythology, from the Srīsailam temple in the Nandikotkūr taluk of the Kurnool district. The plates which are of considerable size belonged to a large series formerly covering the flagstaff, the dome and even the walls of the inmost shrine, said to have been presented to the temple by Krishnarāya of Vijayanagar on returning from his northern conquests in 1513 A D. This famous Sivaite temple, dedicated to Mallikarjuna and situated on the high banks of the Kistna in the midst of malarious jungles and rugged hills, is one of the twelve great shrines of later Hinduism, and is reputed to be the most ancient and sacred of the temples in Southern India. It was richly endowed by Hindu princes and nobles, and was in a prosperous condition till the arrival of the Muhammadans in the seventeenth century (Kurnool District Manual, page 144). Dr. Burgess identifies Srīsailam, or Srīparvata as it is otherwise known, with the Buddhist settlement referred to by the Chinese pilgrim Hiuen Thsang as Po-lo-mo-lo-ki-li, and by the pilgrim Fa-hian as Po-lo-yu (Buddhist Stupas of Amaravati and Jaggayyapeta, page 6). The plates were disposed of by public auction under the sanction of the District Court, as the Pushpagiri Mutt to which the temple belongs was unable, owing to the inaccessibility of the locality, to make proper arrangements for safeguarding it. I proceeded to Kurnool and selected the most interesting of the series for preservation in the Museum. Mr. S. G. Roberts, I.C.S., who while acting as District Judge kindly brought the sale of the plates to my notice, remarks:—"In past ages the

Chenchus defended the temple from an attack by Rohillas, so these wild jungle folk consider that they have a right to the temple they defended, and for some years past they have been repaying themselves by scraping the gold off the plates."

(3) Two lamps of an archaic type found at Chigatēri village in the Bellary district and acquired under the Treasure Trove Act. They bear an inscription in Canarese which states that they were presented to the Sri Ramanathaswami temple at Chigatēri in the year 1201 of the Salivahana era (1279 A.D.).

(4) Five copper plates with copper ring and seal from Vemalurpādu, Guntūr district. They belong to the time of the Eastern Chalukya King Ammaraja II (945–970 A.D.) and refer to important historical points in this period. The plates, which record the grant of a piece of land to a Brahmin, were purchased by the Superintendent of the Archæological Survey, Southern Circle, on behalf of the Government of India and lent to this museum for exhibition.

(5) A copper box with gold and silver ornaments used for decorating idols in Hindu temples, found at Pulivalam, Tanjore district, and acquired under the Treasure Trove Act.

(6) A copper pītam or pedestal in the form of a trough measuring 4 feet 3 inches by 2 feet 3 inches, supported by six moulded legs and with a spout at one end. It was found in the Mannārgudi taluk, Tanjore district, and acquired under the Treasure Trove Act.

The following Treasure Trove copper or bronze images were received during the year:—a figure of Vishnu from Viragalur, Trichinopoly district; a Sulapidari from Sayanapuram, Tanjore district; seven Sivaite images accompanied by seven small stone lingams from Panchanadikulam Kilasethi, Tanjore district; and eleven Vaishnavite images from Tiruppuvanam, Madura district.

8. Numismatics.—The following coins were acquired under the Treasure Trove Act:—

(1) Fifteen Pandyan gold coins (varāhas) found in the South Canara district. They constitute one of the most interesting numismatic finds made during recent years in South India and an addition to the small number of gold Pandyan coins hitherto met with. The obverse bears a series of unrecognizable symbols, while the reverse carries a Nāgarī inscription in three lines which reads Śrī-Pā ṇpa[ṇḍya]-Dhana[ṁ] | jaya. Rao Bahadur V. Venkayya, Government Epigraphist, to whom I am indebted for this reading, sends the following interesting note:—"Pāṇḍyā-"Dhanaṁjaya (*i.e.*, the Pāṇḍyā chief who resembled the Mahābhārata hero Arjuna) "was probably a surname of one of the chiefs of Kārkaḷa in the South Canara district. "The colossi at Kārkaḷa and Vēnūr in that district were set up by chiefs belonging "to the Pāṇḍyā family, the first by Vīra-Pāṇḍyā (or Pāṇḍyarāya) and the second "by the younger brother of a prince named Pāṇḍyā." Mr. Venkayya observes that Sir Walter Elliot's Coin No. 129 ("Coins of Southern India") bears a legend which may also be read "Pāṇḍyā-Dhanaṁjaya." With regard to the symbols on the coins of the present find he suggests that as one of the Kalasa-Kārkaḷa chiefs bore the title Arirayagaṇḍara-ḍāvani, *i.e.*, "the tying rope of cattle" (hostile kings), it is possible that two of them represent ropes by which cattle are tied.

(2) Sixty-two 'Gajapati' pagodas found in the Malabar district. The examination of this large series has disclosed the fact that there are several types of the coin differing in the early Canarese letters which appear over the back of the elephant and only visible in comparatively few specimens.

(3) Sixty-one punchmarked Buddhist coins found in the Vizagapatam district.

Specimens of the first two coins were distributed to the Indian Museum and other institutions, in accordance with the rules to regulate proceedings under the Indian Treasure Trove Act.

The following coins were added to the collection by purchase:—Moghul coins struck at South Indian mints (Arkat and Chinnapatan) from the Bahawalpur State treasury; Indo-Dutch, Indo-French (Karikal), a pagoda of Tirumalarāya of Vijayanagar, and other coins purchased locally; silver East India Company coins of the Madras mint purchased from Messrs. Spink & Son, Limited, London.

A descriptive catalogue was drawn up of a collection of gold coins belonging to His Highness the Raja of Cochin.

To the Governments of Bombay, the Central Provinces, the United Provinces, and to the Bombay Branch of the Royal Asiatic Society the Museum is indebted for many coins presented to it in the course of the year.

9. Economic and Botanical.—The Economical and Botanical Assistant made tours to Vandalur, Chingleput district, in October, to the North Arcot district in December, to the Godāvari and Vizagapatam districts in January, and to Padavedu, North Arcot district, in February. As a result of these tours, specimens of economic interest were collected and a number of photographs taken, chiefly of growing plants, most of which are now exhibited in the Economic and Botanical Galleries. In addition to photographic enlargements which are placed in convenient positions near the exhibits to which they refer, a new departure has been made by placing cabinet photographs in the show cases alongside the actual specimens, and there can be no doubt that the interest of the exhibits is thereby considerably increased.

At Padavedu photographs were taken to illustrate the various processes in the preparation of ganja obtained from Indian hemp (*Cannabis sativa*), and copies of these have been supplied to the Inspector-General of Excise and Salt, Government of India. The Economic and Botanical Assistant reports that at present no attempt is made to extract the fibre from the hemp plants grown at Padavedu, and that to prevent illicit cultivation a large quantity of seed is annually destroyed from which a useful oil could be expressed. The male plants which produce no appreciable quantity of ganja are pulled up and burnt, yet they yield the best fibre, and fibre of fair quality can even be extracted from female plants after they have flowered. By means of an ordinary bullock oil-press my Assistant obtained a viss and a half of oil from seven and a half measures of seed.

The collection illustrating the timber resources of South India has been re-arranged and duplicates eliminated. The specimens are now arranged alphabetically and popular names have been added wherever possible to the scientific ones.

A collection of South Indian oils was sent at his request to Mr. A. Kesava Menon, Government scholarship-holder in England, for the purpose of determining their value in soap-making. He has since published an account of their chemical properties.

A series of Madras vegetable products used in medicine was sent to the recent Allahabad Exhibition.

Other additions made to this section during the year were:—a collection of brushes formed from vegetable fibres; rubber from *Ficus elastica* grown at the Government Experimental Garden, Kullar, the Nilgiris; and silk preparations from the Mulberry Silk-worm (*Bombyx mori*) presented by the Salvation Army Sericulture Farm, Bangalore.

10. Geology and Mineralogy.—A collection of South Indian fossils and minerals presented to the Museum some years ago by Mr. W. E. Hoare was examined and the specimens were named by Mr. G. H. Tipper of the Geological Survey department.

A specimen of iron alumina garnet, of moderate value in jewellery, found at Panagudi, Nāngunēri taluk, was received from the Collector of Tinnevelly.

A sample of kaolin or china clay from the Berijam project, Palni hills, was forwarded by the Executive Engineer, Madura Special division, and the Chemical Examiner, Madras, to whom it was sent for analysis, reported that it consists of almost pure aluminium silicate.

11. Natural History.—In the course of a short tour which I made to the Shevaroy hills in September, collections chiefly of birds, insects, and molluscan shells were made, and a number of the birds have replaced older and less perfect specimens in the Bird Gallery. The senior taxidermist visited the Godāvari district in February and obtained a number of birds, some of which were new to the Museum collection. The show cases containing the exhibited specimens of birds and mammals were all repainted during the year and the median partitions removed, thus admitting light from both sides and enabling the exhibits to be better seen. The interiors of the coral show cases in the Fish Gallery were painted black and the appearance of the white corals is thus considerably enhanced.

A collection of insects made on the Palni hills in 1909 was returned to the Museum from Pūsa, where a number of the species were named by the Imperial Entomologist.

Two living specimens, male and female, of the lion-tailed monkey (*Macacus silenus*) were presented by the Zamindarni of Cheyūr, Chingleput district, and are kept in the Museum grounds. This handsome black monkey which inhabits the hill forests of the Malabar coast is not often seen in captivity.

A specimen of the large shark *Rhinodon typicus* measuring 19 feet in length, was captured in a fishing net and landed on the South beach, near the Ice House, on 25th March. Although the fish was examined by my senior taxidermist and notes taken, the matter was unfortunately not brought to my notice till some days later when all traces of it had disappeared. I am informed that the flesh was sold in the local fish bazaars. The Museum already possesses a stuffed specimen of *Rhinodon typicus*, 22 feet long, which was cast ashore dead on the Madras beach in 1889.

Among the more important additions to this section may be noted :—

(1) A female Dugong (*Halicore dugong*) from Tuticorin, measuring 7 feet 3 inches in length. This specimen, for which I am indebted to Mr. James Hornell of the Madras Fisheries Bureau, was kept alive, tethered to an anchor in Tuticorin harbour, till the arrival of the Museum taxidermist. It is now exhibited in a special case in the annexe to the Fish Gallery accompanied by an enlarged photograph of the living animal as it lay surrounded by a crowd of spectators on the beach at Tuticorin. This interesting mammal was only previously represented in the Museum by a skeleton.

(2) The following birds new to the collection :—Common Indian Nightjar (*Caprimulgus asiaticus*) from Madras ; Pied Myna (*Sturnopastor contra*), White-necked Stork (*Dissura episcopus*), and Common Heron (*Ardea cinerea*), from the Godāvari district.

(3) A sea-snake (*Hydrophis spiralis*) from Madras measuring 8 feet 2 inches in length, and one of the largest sea-snakes hitherto recorded. It contained fourteen young ones, each about a foot long, which were sent to Major F. Wall, I.M.S., who has since published an account of them in the Journal of the Bombay Natural History Society. The skin of the mother snake is exhibited in the Reptile Gallery.

(4) Twenty young Russell's Vipers (*Vipera russellii*) removed from the body of the mother and exhibited in their transparent embryonic membranes. The young snakes although only seven and a half inches in length show all the characteristic markings of the species. The mother measured 4 feet $2\frac{1}{2}$ inches.

(5) A Python or Rock Snake (*Python molurus*) from Guindy Park, which although of very moderate size, apparently not exceeding 8 feet in length, had yet on trustworthy evidence managed to swallow a young antelope. The occurrence of this snake in the immediate vicinity of Madras town is noteworthy. The specimen in question has been added to the Museum collection of live animals.

(6) Large nests of an ant (*Cremastogaster* sp.) from the Shevaroy hills where they are found on trees.

(7) A very perfect comb of the Small Indian Bee (*Apis florea*) from the Museum grounds. Specimens of the queen, drones and workers are exhibited in the same case.

(8) A large fresh-water prawn (*Palæmon malcolmsonii*) from Madras. This and other species of *Palæmon* from South India are described in a paper by Mr. George Matthai, of the Christian College, and myself, which appeared recently in the Records of the Indian Museum, Calcutta.

(9) A collection of named Indian earthworms received from Dr. N. Annandale of the Indian Museum.

12. Marine Aquarium.—In their Order No. 161, dated 26th March 1910, Government sanctioned my proposal that, from 1st April 1910, the Aquarium should be open to visitors from 7 to 11 A.M. and from 2 to 6 P.M. on all days except Friday when it is closed to the public, and that the admission fees should be fixed as follows :—on Wednesday 4 annas per visitor, on other days from 7 to 11 A.M.

1 anna per visitor, and from 2 to 6 P.M. half an anna per visitor. It was also laid down in the G.O. referred to, that students accompanied by their teachers for the purpose of demonstration should be admitted during the morning hours at the rate of half an anna each, and that both the morning and afternoon of the last Monday of each month should be set apart for gosha ladies.

The total number of visitors during the year under review, and the amount realized in entrance fees, were 143,897 and Rs. 5,223 respectively. The greatest number of visitors on any single day was 4,062 on Kannu Pongal (16th January). The total admissions on Wednesdays (when the special rate of 4 annas per visitor is charged), on gosha, and on ordinary days are shown below :—

	Morning.	Afternoon.	Total.
Wednesdays	441	1,210	1,651
Gosha days	159	3,129	3,288
Other days	11,559	127,399	138,958

The Aquarium was opened to the public on the 21st October 1909 and the number of visitors from that date to the 31st March 1910 was 100,463 ; for the corresponding period of the year under review the number was 70,013. These figures seem to show that the novelty of the Aquarium attracted large numbers of visitors during the early months of its existence, and while there is every indication that it will continue to stand high in public favour, longer experience is required to show whether the present figures will be maintained.

By G.O., No. 281, Educational, dated 24th May 1910, a third keeper was appointed on Rs. 10—½—13, and the pay of the second keeper was raised from Rs. 10—1—15 to Rs. 14—½—17.

The larger tanks are stocked with fish from the Madras coast, many of which by their bright colours and bizarre form attract much attention, while special novelties such as the horse-fish (*Hippocampus*), sea-anemones, hermit-crabs, etc., are shown in the small separate aquaria. The fish continue to thrive, the chief cause of mortality being fights in which the victory is not always to the strong ; for some reason, not as yet apparent, crabs and lobsters of which many beautiful varieties can be obtained locally, do not live for more than a week or two. The large open tank contains specimens of two marine turtles, the Green Turtle (*Chelone mydas*) and the Loggerhead (*Thalassochelys caretta*) which live well in confinement.

Coloured figures of a representative series of Madras sea fish, with their scientific and Tamil names, are exhibited over the tanks and seem to be greatly appreciated by visitors.

13. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 19,234 against 19,204 in 1909-1910 :—

Largest number of readers in a day	151
Smallest ,, ,, ...	7
Largest ,, on Sunday	135
Smallest ,, ,, ...	43

The number of standard works added to the library was 278, of which 215 were purchased and the rest presented. Among the books acquired may be mentioned "The Complete Hindoo Pantheon" by E. A. Rodrigues of the Survey Department. Of this scarce work which was issued in parts from the Oriental Lithographic Press, Vepery, Madras, between 1841 and 1845 only a very incomplete copy previously existed in the Library. A copy of the historical essay published in 1696 on the "East India Trade" by Charles Davenant, who is referred to by the late Sir Alfred Lyall as "the chief commercial authority of his day," was also added to the Library.

The second supplement to the Library Catalogue of Books under Authors' Names was published during the year. Slips for a consolidated Subject Index of the books in the Library were in preparation, and it is hoped that the index will be finally ready for press before the end of the current official year.

A statement of the number of books issued to readers during the last two years, under the various subject catalogue heads, is subjoined :—

	1909-1910.	1910-1911.
Anatomy; biology; natural history; zoology	715	807
Anthropology; folklore	462	514
Archæology; architecture	193	189
Arts; industries	1,321	1,208
Atlases; maps	103	95
Belles lettres	4,418	4,319
Botany; arboriculture; horticulture	229	217
Chemistry; agriculture; photography	383	326
Classics	135	128
Dictionaries; encyclopædias; gazetteers; manuals ..	4,988	5,084
Economic products	69	182
Education; ethics; logic	776	824
Exhibitions	35	24
Forestry; timbers	37	58
Geography; physical geography; physiography	170	103
Geology	87	115
History	2,803	2,913
Jurisprudence	452	438
Medicine; surgery; pathology	316	282
Microscopy	26	33
Mineralogy; metallurgy	141	132
Natural philosophy	685	569
Numismatics; medals; heraldry	81	97
Philology; epigraphy	1,517	1,489
Photographs	101	83
Physiology	174	247
Public health	117	98
Religion	793	1,035
Sport and games	316	288
Travels; voyages	212	180
Vernacular languages	119	75
Fort St. George Gazette (other than current issues)	503	621

14. UNIVERSITY LIBRARY.—Books recommended by the Board of Studies in Engineering were received during the year.

A small sub-committee has been appointed to revise the manuscript slips already prepared for the catalogue of books arranged according to authors' names. The preparation of the subject indexes has been deferred pending the issue of the authors' catalogue.

Although the Library cannot be formally opened to the public till the issue of the catalogue, it has been used by a number of post-graduate students and others engaged in special research.

15. VALUABLE STOCK.—The necessary inventory was maintained and duly checked.

The usual list of donations and statement of expenditure are appended.

APPENDIX A.

DONATIONS, 1910–1911.

Assistant Archæological Superintendent for Epigraphy, Southern Circle—

Inscribed copper plates (Nos. 4, 7 and 9 of appendix A of his annual report for 1908–1909).

Balasundaram, Mr. J. S.—
Living Chameleon (*Chamæleon calcaratus*).

Boys, Mr. H.—
Silk moth (*Actias selene*).

Calcutta, Superintendent, Indian Museum—
Thirty seven species of Indian Diptera.
Indian earthworms (named species).

Campbell, Mr. J.—
Eggs and young of a snake (*Tropidonotus stolatus*).

Campbell, Rev. Dr. T. V.—
Rhinoceros beetle, and shells of *Ariophanta bistrialis*, from the Shevaroy hills.
Insects (Dermaptera, Blattidæ, etc.) from the Shevaroy hills.
Eggs of Lesser Florican (*Sypheotis aurita*) from Cuddapah.

Central Provinces, Director of Agriculture—
A silver coin of Ahmad Shah Bahadur found at Jubbulpore city.
A copper coin of Muhammad II found at Bhandara.
A gold Gupta coin found at Sakhor in the Hatta tahsil.
Nine rupees of Aurangzib, Surat mint, found at the village of Bakal in the Sahora tahsil, Jubbulpore district.
Nineteen copper coins found in the Chanda district.
Sixteen copper coins found in the village of Badpani in the Lakhnadon tahsil, Seoni district.

Chandragiri range (North Arcot district), Deputy Ranger—
Stems of *Bambusa arundinacea*.

Cheyūr, The Zamindarni—
Two Lion-tailed monkeys (*Macacus silenus*).

Chief Engineer for Irrigation, Madras—
Old plan of Madras in 1746.

Coimbatore, Conservator of Forests, Southern Circle—
Fruit of *Berberis aristata*.
Fruit of *Eugenia arnottiana* and a cross-section of *Stephegyne parvifolia*.
Fibre and bark specimens of *Derris scandens*.

Corporation of Madras—
Llama.
Two Wallabies.
Leopard (*Felis pardus*).
Golden Pheasant.
Black Ape.
Pheasant.
Sloth Bear (*Melursus ursinus*).
Mouse Deer (*Tragulus meminna*).
Ring Pheasant.
Peacock (*Pavo cristatus*).
Crocodile (*Crocodilus palustris*).

Entomologist, Imperial, Agricultural Research Institute, Pūsa—
Specimens of *Apis florea*.
Specimens of silk moths from Pūsa.

Ganjām, Collector—
Two silk cocoons (*Antheræa paphia*) from Korada, Ganjām district.

Hoare, Mr. W. E.—
South Indian fossils.

Hornell, Mr. J.—
Dugong (*Halicore dugong*) from Tuticorin.

Johnston, Mr. W. A.—
Snake (*Typhlops braminus*).

Kumara Menon, Mr. N.—
Trombidium sp. from the Tinnevelly district

Lahore, Central Museum, Curator—
Twenty-eight Moghul rupees.
An ancient Kashmir coin.

Loveluck, Mr. E. B.—
Two live crocodiles (*Crocodilus palustris*) from Mangalore.

Madura, Executive Engineer, Special division—
Kaolin (aluminium silicate), from the Palni hills.

Mathews, Mr. A. R., Madras Port Trust—
Sea-snake (*Hydrophis spiralis*).
Eel (*Muræna tessellata*).
Fish (*Julis lunaris*).

Ootacamund, Government Botanical Gardens, Curator—
Rubber from *Ficus elastica*.

Quilon, Divisional Forest Officer—
Gum of *Pterocarpus marsupium* (gum kino).

Robinson, Mr. W. W.—
Fish (*Ostracion cornutus*).

Royal Asiatic Society, Bombay Branch—
Two Andhra coins of 2nd or 3rd century A.D., of kings Dhutukalananda and Mulananda, found in the Karwar district of the Bombay Presidency.

Shepherd, Col. C. E.—
Collection of fish-otoliths.

Subrahmaniam, Mr. V., M.A., Forest Zoologist to the Government of India, Dehra Dun, U.P.—
A book scorpion (*Chelifer* sp.). } Both from South Arcot.
A field mouse (*Mus* sp.). }

Sundara Raj, Mr. B., B.A.—
A field mouse (*Mus buduga*).

Superintendent, Archæological Survey, Southern Circle Madras—
Two inscribed granite slabs found at the weir of the Veeranum tank, South Arcot district.

Superintendent, Archæological Survey, Western Circle, Poona—
Two gold coins (Kabul current and Moghul Aurangzib).
Eleven silver coins (Moghul rupees and Native State coins).
Two copper coins (Indore).

Sydney, Australian Museum, Curator—
Two Australian boomerangs.

Tinnevelly, Collector—
Specimen of iron-alumina garnet.

Trichinopoly, Superintendent, Central Jail—
Stone specimen (gneiss).
Specimen of kunkur.

United Provinces Government—
Seventeen coins found in the Khiri district (Moghul and other rupees).
Seven coins found in the Mainipuri district (one gold and six silver Tughlaq coins).
Two silver coins found in the Agra district (Moghul rupees).
One silver coin found in the Bansgaon tahsil of the Gorakpur district (Moghul rupee).
Eleven silver coins found in the Lucknow district (Lucknow and Benares rupees).
Four silver coins found in the Mirzapur district (Moghul rupees).
Two copper coins found in the Banda district.
Three silver coins found in the Shahjahanpur district (Moghul rupees).

West Coast division, Executive Engineer—
Fifty-eight fragments of images from the Sultan's Battery Jain temple.

APPENDIX B.

Classified List of Expenditure of Government Museum, Connemara Public Library, and Marine Aquarium, during the year 1910-1911.

Government Museum and Connemara Public Library.

	Actuals, 1910-1911.	Revised estimate, 1910-1911.
	RS.	RS.
Salaries—		
Superintendent	5,400	5,700
Exchange compensation allowance	..	187
Local allowance	..	1,200
Total	5,400	7,087
Permanent establishment, Government Museum— Herbarium keeper, first assistant, second assistant, senior and second taxidermists, writer, assistant writer and 26 peons—33 persons .. .. Permanent non-pensionable establishment, Government Museum— Three gardeners, three sweepers, six watchmen, water pandal Brahmin, latrine sweeper, punkah-puller and chockra—16 persons	7,774	7,846
Permanent establishment, Connemara Public Library— Sub-librarian, three attendants and two peons—6 persons .. .. Permanent non-pensionable establishment, Connemara Public Library— Servant (sweeper)—1 person	2,127	2,164
Total, Establishment	9,901	10,010
Allowances—		
Travelling allowance	660	1,200
Grain compensation allowance	837	471
Total Allowances	1,497	1,671
Supplies and Services—		
Cost of specimens purchased on tour	552	700
Objects of interest and coins purchased at head-quarters	825	700
Fittings, furniture, etc., for the collection	1,468	1,879
Cost of books and publications	897	900
Library	2,509	2,000
Lithographic plates	2,570	2,900
Ammunition	7	15
Charges for feeding live animals	300	275
Expenses—reading coins	2	10
Cost of indented Europe stores	17	..
Freight on Europe stores	2	..
Total, Supplies and Services	9,149	9,379
Contingencies—		
Purchase and repair of furniture	156	135
Tour charges	177	185
Cleaning charges	24	32
Postage and telegraph charges	122	170
Telephone charges	150	180
Rents, rates and taxes	4,473	4,473
Office expenses	609	605
Freight	..	..
Total, Contingencies	5,711	5,780

Marine Aquarium.

	Actuals, 1910-1911.	Revised estimate, 1910-1911.
	Rs.	Rs.
Permanent establishment, Marine Aquarium—		
Head-keeper, second keeper, third keeper and two door-keepers—5 persons	888	1,041
Permanent non-pensionable establishment, Marine Aquarium—		
Night watchman, sweeper, two fishermen and fisher-boy—5 persons		
Famine batta	146	87
Total, Establishment ..	1,034	1,128
Supplies and Services—		
Food for animals	667	750
Fittings, etc., for the collection	168	180
Total, Supplies and Services ..	835	930
Contingencies—		
Wages and cooly	150	..
Tour charges	377	350
Postage and Telegraph charges	..	5
Office expenses	81	50
Miscellaneous	23	50
Rents, rates and taxes	196	196
Purchase and repair of furniture	52	50
Total, Contingencies ..	879	701
Total, Marine Aquarium ..	2,748	2,759
Grand Total ..	34,406	36,686

Order—No. 478, Educational, dated 15th July 1911.

Recorded.

2. The thanks of Government are due to the persons who made donations to the Museum during the year.

(True Extract.)

L. DAVIDSON,
Ag. Secretary to Government.

To the Superintendent, Government Museum.
" Director of Public Instruction.
" Accountant-General.
" Public Department.
" Revenue Department.
" Director-General of Archæology (with C.L.).
" Superintendent, Archæological Department, Madras.
Editors' Table.

LIBRARY OF THE ROYAL ASIATIC SOCIETY BOMBAY BRANCH

Government of Madras.

EDUCATIONAL DEPARTMENT.

Read. } 1912. *Enclosures*

Regd. } *Spare copies*

G.O. No. 659, 20th July 1912.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

Government Museum.

Recording report on the working of the —, the Marine Aquarium and the Connemara Public Library, for 1911-12.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper :—

Letter—from J. R. HENDERSON, Esq., M.B.C.M., F.L.S., Superintendent, Government Museum, Madras.
To—the Secretary to Government, Educational Department.
Dated—the 4th May 1912.
No.—328.

I have the honour to forward for submission to His Excellency the Governor in Council, the report on the working of the Government Museum, the Marine Aquarium and the Connemara Public Library, during the year 1911–12, and to request that I may be supplied with 160 copies for distribution to other Museums, etc.

Administration of the Government Museum, etc.,

BOMBAY BRANCH
OF THE
Royal Asiatic Society.

With the sanctio... st of Superintendent of the Government ... Connemara Public Library, was created ..., with free quarters, and I was appointed t... on an initial salary of Rs. 600. I had p... ncipal Librarian since 9th December 1908, ...as.

2. VISITORS.—Th... v, as well as for the preceding year, were as follows :—

	1910–1911.	1911–1912.
Total number of visitors to the Old Building ..	444,837	326,968
Total number of visitors to the New Building ..	437,984	335,663
Largest number of visitors on a single day to the Old Building	77,723	45,384
Largest number of visitors on a single day to the New Building	79,084	35,414
Total number of visitors on Sundays to the Old Building	68,368	55,311
Total number of visitors on Sundays to the New Building	64,228	57,765
Total number of gosha female visitors (on the first Saturday in each month)	12,356	10,818

The decrease in the number of visitors cannot be accounted for ; but, as pointed out by Government in reviewing a former report, " the number of persons who visit a public institution like a museum depends on a variety of causes, and naturally fluctuates from year to year". As usual Kannu Pongal (16th January) was the day on which the Museum was attended by the largest number of visitors.

The Museum was visited by Their Excellencies Lord and Lady Carmichael, and His Excellency Lord Carmichael paid several visits during the short period he was Governor of this Presidency.

3. BUILDINGS.—In G.O. No. 985 W., dated 2nd August 1911, Government sanctioned an estimate amounting to Rs. 34,500 for extending the Sculpture and Economic Galleries and providing a new office for clerks. The construction of the latter has been taken in hand ; and as soon as it is finished, the existing office building will be demolished to make way for the extensions to the galleries. It is hoped that every effort will be made by the Public Works Department to execute the work as quickly as possible.

4. Theatre.—The Theatre was used on twelve occasions during the year as follows:—

Amateur Dramatic Society's entertainments	7
Madras Musical Association's concerts	2
Concert in aid of St. Andrew's Poor School	1
Collegiate School prize distribution	1
Doveton Girls' School prize distribution	1

5. Establishment.—On my representation that the pay (Rs. 100—5—150) of my Personal Assistant, who is also Sub-Librarian of the Connemara Public Library, was inadequate, Government have been pleased to raise it to Rs. 100, rising to Rupees 200 by annual increments of Rs. 10.

6. Museums' Conference.—I was deputed by Government to the Conference of Orientalists convened by the Government of India at Simla in July. In addition to oriental studies, the Conference discussed the subjects of Museums and Archæology The second triennial Museums' Conference assembled at Madras in January, the first one having met at Calcutta in December 1907. The Conference was opened by His Excellency Lord Carmichael, who evinced much interest in its proceedings. The deliberations extended over three days and eighteen delegates attended, including the Directors of the Colombo and Federated Malay States Museums. Dr. Vogel, Officiating Director-General of Archæology, was elected Chairman of the Conference and I was elected Honorary Secretary of the Standing Committee.

7. Historical.—On the suggestion of Mr. Rea, Superintendent of the Archæological Survey, Southern Circle, an old wooden door from the ruined fort at Anjengo on the Travancore coast has been sent to the Museum. The place is now little more than a fishing village, but it was one of the earliest English settlements in India and has many interesting associations. The door, which is massive and of a primitive type of construction, is studded with strong iron nails.

8. Archæology and Art.—The collection of South Indian bronze images, including a number acquired from Treasure Trove finds in recent years and others not previously exhibited, has been arranged in the course of the year. The entire landing at the top of the staircase in the New Building has been set aside for the larger figures and all of them have been labelled. The Museum collection of these bronzes, which are now awakening considerable interest in Art circles in Europe, is without doubt the finest in existence. The two figures of Natarāja (the dancing Siva) which are comparatively well-known because they have more than once been figured in works on Indian Art, are still outstanding features in the collection, but the recent additions comprise others of high merit.

Among the more noteworthy additions to this section are the following:—

(1) Five copper plates with ring and seal acquired through the Revenue and Archæological departments from the chief priest (Bhattāchārya) of the Vaishnava temple at Vēlūrpālaiyam village in the North Arcot district. The Assistant Archæological Superintendent for Epigraphy, Southern Circle, states that these plates "add largely to our knowledge of the later Pallava history prior to the predominance of the Ganga Pallavas" (*vide* paragraph 5 of part II of his report, in G.O. No. 832, Public, dated 28th July 1911).

(2) Thirteen copper plates forwarded by the District Judge of Madura to the Assistant Archæological Superintendent for Epigraphy and sent by the latter for deposit in the Museum. Most of the plates belong to the Sētupatis of Rāmnād and the Nāyaka dynasty of Madura (*vide* paragraphs 61–62 of the report referred to *supra*).

(3) Three sets of copper plates received from the Assistant Archæological Superintendent for Epigraphy, two of which relate to grants by kings of the Eastern Chālukya dynasty (*vide* paragraphs 60–61 of part II of his report, in G.O. No. 538, Public, dated 28th July 1909).

(4) A sample brick (measuring $21 \times 10\frac{1}{2} \times 3$ inches) from the Buddhist buildings at Rāmathīrtham in the Vizagapatam district.

(5) A fine set of photographs of the Amarāvati sculptures exhibited in the Museum kindly supplied by Messrs. Johnston and Hoffmann of Calcutta. These photographs have been mounted on a revolving stand in the Archæological Gallery.

The following stone idols have been acquired under the Indian Treasure Trove Act:—

(1) Fourteen idols, including figures of Siva, Vishnu, Subramanya, Brahma and Ganesa, discovered in the course of excavation in the temple poramboke lands at Keelnarma village, Wandiwāsh taluk, North Arcot district.

(2) Fourteen idols representing Vishnu, Lakshmi, Garuda, and eleven ālvārs or saints, discovered while excavating the foundations during repairs to the Jama Musjid at Tādpatri, Anantapur district.

(3) Fifteen idols (among which is a Nandi or bull of good workmanship) and seven lingams found at Rāvinūtala village, Guntūr district.

The following Treasure Trove bronze images were acquired during the year:—

A figure of Krishna subduing the serpent Kāliya, from South Arcot, and belonging to a type not previously represented in the collection; a figure of Siva from the Tanjore district; a set of small figures (Vishnu, with his two wives, and Krishna) from South Arcot; and a typical collection of small Vaishnava idols from the Rāmnād district.

A fine group of Siva and Parvati seated on a pedestal and a figure of Mānikka-vāçagar, one of the sixty-three saints of the Saivite faith and reputed author of the collection of hymns known as the Tiruvāçagam (Sacred Utterances), both from the Tanjore district, were acquired by purchase from the Victoria Technical Institute.

The Archæological Section was inspected and reported upon by Dr. J. Ph. Vogel, Officiating Director-General of Archæology. Acting on his advice, the Amarāvati sculptures which had lain exposed in the Museum grounds for many years and had in consequence undergone some deterioration, were removed to the Museum cellars. Mr. Rea. Superintendent, Archæological Survey, Southern Circle, was deputed by Government to devote part of his time to the work of arranging and cataloguing the antiquities in the Museum. The work was commenced in the latter half of the year, but pending the completion of a temporary shed which is in course of erection, little progress has so far been made.

9. Numismatics.—The following coins were acquired under the Treasure Trove Act:—

(1) One hundred and one varāhas or pagodas and two hundred and twenty-five half-pagodas, found in the South Canara district. They belong to the Vijayanagara dynasty and were struck by the following kings:—Dēvarāya, Krishnarāya, Achyutarāya and Sadāsivarāya; but the find also included a few pagodas of Sadāsiva the first Nāyaka of Ikkēri.

(2) Seven "Lingāyat" pagodas found in the North Arcot district.

(3) Six Venetian sequins from the Malabar district struck by the Doges Carlo Ruzzini, Francesco Loredan, Alvise Mocenigo, Paolo Renier and Ludovico Manin.

(4) Four gold fanams, known locally as "rukalu", from the Nellore district.

(5) One Porto Novo pagoda or "poovarāhan", from the Chingleput district.

(6) Two Roman silver coins from the Coimbatore district. They are denarii of Tiberius and belong to a common type.

Specimens from the first two of these finds were distributed to the Indian Museum and other institutions in accordance with the rules to regulate proceedings under the Indian Treasure Trove Act (appended to G.O. No. 604, Public, dated 26th July 1907). As these rules are silent with regard to the disposal of coins remaining after distribution, and not sold within six months of an advertisement in the *Fort St. George Gazette* or presented to selected institutions in Europe, Government have, on my recommendation and with the previous sanction of the Government of India, been pleased to rule that such surplus coins should not be melted down, but retained in this Museum and advertised for sale periodically in a few selected publications in Europe and India (G.O. No. 376, Public, dated 28th March 1912).

Numerous coins found during the course of excavations in the buried city of Periapatnam in the Rāmnād district were received from the Archæological Department. They are referable to the Chōla, Pāndya, Vijayanagara and Sētupati dynasties.

Three inscribed Andhra lead coins in an unusually good state of preservation and eight copper coins belonging to the Eastern Chālukya dynasty were received from the Collector of Gōdāvari.

Thirty-seven coins from Ceylon (Ceylon English, Ceylon Dutch, Pulicat, Negapatam, Kandyan, Sētupati, and Roman) and two Indo-Danish lead coins struck at Tranquebar (Frederick III. and Christian V.) were acquired by purchase.

To the Governments of the Central Provinces, the United Provinces, the Punjab, Assam and Mysore, and to the Bombay Branch of the Royal Asiatic Society the Museum is indebted for many coins presented to it in the course of the year.

10. ECONOMIC AND BOTANICAL.—Mr. M. O. Parthasaradhi Aiyangar, M.A., was transferred temporarily to the Teachers' College in July and his place as Economic and Botanical Assistant was filled by Mr. T. V. Narasinga Rao, B.A., a local graduate in Botany. The latter officer made tours to the South Arcot district in January, and to Tanjore, Negapatam, Trichinopoly, Madura and Koilpatti in March, as a result of which various specimens of economic importance were collected and a number of photographs, both of living plants and of agricultural operations, were taken. Most of these photographs are placed in the Economic Gallery alongside the exhibits to which they refer.

Among the economic products collected were the following :—

(1) Varieties of paddy, ground-nuts, cumbu, ragi, tenai and maize from the Agricultural Farm at Palur.

(2) New varieties of maize and of sugarcane from Tanjore.

(3) Vegetable products used in perfumery from Negapatam.

(4) Medicinal roots from Madura.

(5) Samples of Cambodia cotton and a new variety of maize from Koilpatti.

Following a visit which I paid to the Vellore Central Jail during the Christmas holidays a set of seventy-two different shades of dyed woollen yarn, used in the manufacture of carpets by the prisoners, was presented to the Museum by the Superintendent of the Jail. These shades are all the result of natural dyes, chiefly vegetable, and a special case has been prepared for their reception.

Certain economic and botanical specimens have been forwarded to the Field Museum of Natural History, Chicago.

11. GEOLOGY AND MINERALOGY.—The large series of cores from borings made for Messrs. Best & Co., Madras, while prospecting for coal in the Gōdāvari and Chingleput districts (referred to in the Annual Report for 1906-07) which had been sent to the Geological Survey of India, were returned to the Museum during the year. I hope to select a representative series for exhibition on the publication by the Geological Survey Department of the results of their examination of the cores.

12. NATURAL HISTORY.—In the course of a tour which I made to the Cochin State in September-October a number of interesting specimens were collected. Owing to facilities which were kindly placed in my way by the Cochin Darbar a profitable week was spent in the State Forests and two new species of animal were discovered, *viz.*, a tortoise and a fresh-water crab. I have described these under the names of *Geoemyda silvatica* and *Liotelphusa malabarica* and accounts of them will appear in the *Records of the Indian Museum*, Calcutta. Short tours were made by the Senior Taxidermist to Ongole in April and by the Second Taxidermist to Cochin in March.

Among the more important additions to this section the following may be noted :—

(1) The first specimen of Swinhoe's Snipe (*Gallinago megala*) recorded from peninsular India, shot by Mr. R. F. Stoney in the Chingleput district, on 6th December. This species breeds in Eastern Siberia and Northern China, migrating in the cold weather to Southern China and the Malay Archipelago ; a few specimens have been recorded from the Malay Peninsula, Burma and Assam. Five other specimens were received at the Museum in the course of the season, all shot in the Chingleput

district by sportsmen to whom the distinctive characters had been pointed out by Mr. Stoney. It seems probable that Swinhoe's Snipe has been previously confused with the common Pintail Snipe (*Gallinago stenura*) to which it bears some resemblance.

(2) The following other birds new to the collection:—Bourdillon's Blackbird (*Merula bourdilloni*), Blanford's Laughing-Thrush (*Trochalopterum meridionale*), Wynaad Laughing-Thrush (*Garrulax delesserti*) and Bourdillon's Babbler (*Rhopocichla bourdilloni*), all from the Travancore hills and presented by the Trivandrum Museum; Ruby-throated Bulbul (*Pycnonotus gularis*), Black-backed Pied Shrike (*Hemipus picatus*) and Small Sun-bird (*Arachnechthra minima*) from the Cochin State Forests; Indian Reef-Heron (*Leptorodius asha*) from Madras.

(3) The skull and part of the dorsal shield of a Leathery Turtle (*Dermochelys coriacea*), the largest and rarest of the marine turtles, and one for which there is no previous record from the Coromandel Coast. It was captured alive on the Guntūr Coast and was being exhibited in a show at Ongole when I was informed of the fact by an Indian correspondent. The taxidermist who was despatched immediately found on his arrival that the turtle had died some days previously, but he was able to exhume certain of the remains sufficient to establish the identity of the species and to form an interesting exhibit.

(4) In addition to the new species already referred to, specimens of the following tortoises previously recorded only from Travancore were obtained in Cochin State:—*Testudo travancorica* and *Geoemyda trijuga* var. *coronata*.

(5) A number of fish new to the collection including *Carcharias sorrah*, *Rhinoptera javanica* and *Rhynchobatus djeddensis*.

In addition to the above species none of which had previously been acquired by the Museum, a considerable number of specimens, chiefly birds, have taken the place of older and less perfect ones in the collections.

To Captain F. C. Fraser, I.M.S., I am indebted for assistance rendered in connection with the Museum collection of butterflies and particularly for relaxing and setting most of those taken in the Cochin Forests.

Among the additions to the live animals, which continue to be a source of great attraction, were a Malabar Squirrel (*Ratufa indica* var. *maxima*) from Calicut, a Rock Horned Owl (*Bubo bengalensis*) captured at Anderson's Bridge, Madras, Travancore Tortoises (*Testudo travancorica*) from the Cochin Forests, and specimens of the large Monitor Lizard (*Varanus bengalensis*).

In ten cases of snake-bite treated by permanganate of potash, the snakes were sent to me for identification from the mufassal under the orders in G.O. No. 1068, Public, dated 19th November 1910. Five of the snakes were venomous species, viz., Cobra (2), Russell's Viper (2) and *Echis carinata* (1), while five belonged to the following harmless species:—*Lycodon aulicus* (3), *Gongylophis conicus* (1) and *Dipsas trigonata* (1). I was also consulted in a police case where a snake said to have caused the death of a girl aged six years had been produced. It proved to be a half-grown cobra with the fangs intact and was therefore in all probability capable of inflicting a fatal bite.

13. Marine Aquarium.—The total number of visitors during the year under review, and the amount realized in entrance fees, were 124,966 and Rs. 4,654 against 143,897 and Rs. 5,223 in the previous year. The largest number of visitors on any single day was 4,533 on Kannu Pongal (16th January). The total admissions on Wednesdays (when the entrance fee is four annas) and on gosha and ordinary days (when the fee is one anna in the forenoon and half an anna in the afternoon) are shown below:—

	Morning.	Afternoon.	Total.
Wednesdays	399	1,354	1,753
Gosha days	132	2,225	2,357
Other days	11,286	109,570	120,856

A popular guide to the Aquarium priced one anna a copy was issued in January. The edition of 500 copies was exhausted before the end of the year, but a reprint is in the press and will be issued shortly.

A fine specimen of the Hawksbill Turtle (*Chelone imbricata*) from which the tortoise-shell of commerce is obtained, was procured from Tuticorin through the kind services of Mr. Hornell of the Fisheries Bureau.

Two serious outbreaks of disease occurred among the fish in the latter half of the year, causing the death of a considerable number including some of those which had been longest in the Aquarium. Specimens of the diseased fish were sent to the King Institute, Guindy, and Dr. Maitland Gibson reports that death was due to a septicæmia caused by an undetermined bacillus present in large numbers in the blood. In the later stages of the disease an apparently fungoid growth appeared on the skin. By carefully removing all affected fish and thoroughly cleansing the tanks the disease appears to have been stamped out and the inmates of the Aquarium were seemingly in perfect health at the close of the year.

Special arrangements were made during the year for the admission of private parties including gosha ladies, during the hours in which the Aquarium is ordinarily closed to the public.

14. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 18,374 against 19,234 in 1910–1911 :—

Largest number of readers in a day	..	..	176
Smallest	,,	,,	..	..	..	8
Largest	,,	on Sunday	..	..	..	131
Smallest	,,	,,	..	..	..	33

The number of standard works added to the Library was 291, of which 261 were purchased and the rest presented. The following old prints were acquired and are exhibited in the Library :—

(1) Fort St. George on the Coromandel Coast. By I. Van Ryne (no date).

(2) Palace of the late Nabob of Arcot. By Col. Ward (1803).

(3) View of part of St. Thomé Street, Fort St. George. By Col. Ward (1804).

(4) View from the King's Barracks, Fort St. George. By Col. Ward (1804).

(5) View of Mount St. Thomas, near Madras. By Lieut. James Hunter (1804).

(6) Fort Square from the South side of the Parade, Fort St. George. By Col. Ward (1805).

Government have been pleased to sanction the supply of the following additional periodicals to the Library :—

Weeklies—
- Athenæum.
- Public Opinion.
- London Times Literary Supplement.

Monthlies—
- Contemporary Review.
- Fortnightly Review.
- English Review.
- Nineteenth Century and After.
- Geographical Journal.
- Bookman.
- Knowledge.
- Madras Christian College Magazine.

Quarterlies—
- Imperial and Asiatic Quarterly Review.
- Hibbert Journal.
- Journal of the Mythic Society, Bangalore.

I believe that the addition of these periodicals is greatly appreciated by the general readers using the Library.

The third supplement to the Library Catalogue of Books under Authors' Names was published during the year. The work of preparing slips for a consolidated Subject Index of the books in the Library was taken in hand, but owing to the pressure of current work the index could not be made ready for the press before the end of the year under review. It is hoped that the work will be finished and the printing taken in hand before the end of the current year.

A statement of the number of books issued to readers during the last two years, under the various subject catalogue heads, is subjoined :—

	1910-1911.	1911-1912.
Anatomy; biology; natural history; zoology	807	912
Anthropology; folklore	514	496
Archæology; architecture	189	237
Arts; industries	1,208	1,267
Atlases; maps	95	72
Belles lettres	4,319	4,608
Botany; arboriculture; horticulture	217	209
Chemistry; agriculture; photography	326	297
Classics	128	206
Dictionaries; encyclopædias; gazetteers; manuals	5,084	5,291
Economic products	182	294
Education; ethics; logic	824	885
Exhibitions	24	19
Forestry; timbers	58	47
Geography; physical geography; physiography	103	92
Geology	115	104
History	2,913	3,529
Jurisprudence	438	382
Medicine; surgery; pathology	282	337
Microscopy	33	28
Mineralogy; metallurgy	132	164
Natural philosophy	569	598
Numismatics; medals; heraldry	97	89
Philology; epigraphy	1,489	896
Photographs	83	142
Physiology	247	308
Public health	98	104
Religion	1,035	1,408
Sport and games	288	182
Travels; voyages	180	261
Vernacular languages	75	46
Fort St. George Gazette (other than current issues)	621	719

15. UNIVERSITY LIBRARY.—The question of a separate building for the Library is under correspondence between the Library Committee and the Syndicate of the University, as the whole of the space which the Connemara Library was able to allot to the University Library is now occupied by the books of the latter and the Connemara Library is itself rapidly approaching a similar need for expansion.

The Catalogue of Books under Authors' Names was revised by the sub-committee appointed for that purpose and is in the press.

The Library was, as in the previous year, used by a number of post-graduate students and others engaged in special research work; it will be opened for general use as soon as the catalogue is ready.

16. VALUABLE STOCK.—The necessary inventory was maintained and duly checked.

The usual list of donations and statement of expenditure are appended.

APPENDIX A.

DONATIONS, 1911–1912.

Allen, Mr. Roscoe P.—
Basalt from the Kurnool district.

Annandale, Dr. N., Indian Museum, Calcutta—
Specimen of the common medicinal leech of Northern India.—*Linnatis* (*Poecilobdella*) *granulosa*, Savigny.

Assistant Archæological Superintendent for Epigraphy, Southern Circle—
Three sets of copper plates (from the Kistna district), Nos. 5, 6 and 8 of the Annual Report for Epigraphy, 1908–09.
Thirteen copper (plates from the Madura district), Nos. 3 to 7 and 9 to 16 of the Annual Report for Epigraphy, 1910–11.

Beardsell, Mr. W. A.—
Living black scorpion (*Palamnæus swammerdami*) from Madras.

Bickham, Mr. W. S.—
Swinhoe's snipe (*Gallinago megala*) from the Chingleput district.

Boys, Mr. H.—
Bat (*Megaderma lyra*) from Madras.

Bruce Foote, Mr. R.—
Funeral urn (found in the Nizam's territory on the left bank of the Tungabhadra washed out of a grave by a flood).

Central India, First Assistant to the Agent to the Governor-General—
Silver coin—Qutubuddin Mubarakshah.
Copper coin—Muhammad II.
Silver coin—Akbar II.

Central Provinces, Director of Agriculture—
Rupee of Akbar—Mint, Urdu-Zafarqarin.
Rupee—Ahmad, Katak Mint, Mahratta type, regnal year 5.
Four rupees—One of Muhammad, Kora Mint; three of Shah Alam II, Chattarpur Mint.
Copper coin—(Aurangzeb, Elichpur Mint) found in Wardha district.
Eight Moghul copper coins.
Four silver coins from Mandla district.
Four rupees of Aurangzeb, Akbarnagar, Katak and Narnol Mints.
Six rupees of Aurangzeb, Golconda and Surat Mints.

Coimbatore, Conservator of Forests, Western Circle—
Fruit of *Flacourtia ramontchii*.

Conran, Mr. J. D.—
Macaw (*Ara macao*).

Corporation of Madras—
Two antelopes (*Antilope cervicapra*).
Leopard (*Felis pardus*).
Striped hyæna (*Hyæna striata*).
Brown lemur (*Lemur fulvus*).
Sarus crane (*Grus antigone*).
Malay bear (*Ursus malayanus*).
Pelican (*Pelecanus philippensis*).
Cassowary (*Casuarius galeatus*).

Devanesan, B.A., Mr. D. W.—
Land shells from Sivaganga, Madura district.—*Ariophanta semirugata*, *Helix vittata*, *Rachis punctata*.

D'Lemos, Mr. R.—
Cobra (*Naia tripudians*).

Frank, Rev. H.—
Tusser moth (*Antheræa paphia*).

Fraser, I.M.S., Captain F. C.—
Skins of cobra (*Naia tripudians*), krait (*Bungarus cæruleus*), Russell's viper (*Vipera russellii*) and *Echis carinata*.

Fraser, Mr. I. S.—
Swinhoe's snipe (*Gallinago megala*) from Walajabad, Chingleput district.

Geological Survey of India, Calcutta, Director—
Geological map of India (in six sheets).

Gravely, Mr. F. H.—
Tartarid (*Schizomus peradeniyensis*) from Ceylon.

Harding, Mr. C. P., Segari Rubber, Ld., Segari, Dinding, Straits Settlements—
Specimen of plantation Para rubber (*Hevea brasiliensis*).

Henderson, Miss—
Shells from the Shevaroy and Palni hills.
Ariophanta thyreus from the Nilgiris.
Two rose-ringed parrots (*Palæornis torquatus*).

Hoare, Mr. W. E.—
Living Malabar squirrel (*Ratufa indica* var. *maxima*).

Holman, Mr. D.—
Sea lobster (*Panulirus dasypus*) from Madras Harbour.

Hudson, Mr. R. D.—
Four pit-vipers (*Ancistrodon hypnale*), Earth snake (*Sibybura brevis*), } both species from Travancore.

Indian Museum, Calcutta, Assistant Superintendent in charge of Fish and Shells Department—
Shells from Ganjām and Travancore.

Johnston, Mr. W. H.—
Painted grasshoppers (*Poecilocera picta*) from the Nellore district.

Johnston & Hoffmann, Messrs., Calcutta—
One hundred photos of the Amarāvati sculptures in the Museum.

Kemp, Mr. Stanley, Indian Museum, Calcutta—
Phyllopod (*Apus cancriformis*) from the United Provinces.

Lahore Central Museum, Curator—
Two silver coins (Sultans of Delhi).

Lawson, C.I.E., Mr. A. E.—
Snake (*Hydrophobus nympha*) from Madras.

Marsh, Rev. C. R.—
Specimens of pre-historic pottery and fragments of human bones from the Kurnool district.

Meston, B.D., Rev. W.—
Insect larva.

Mitchell, Mr. H. H. G.—
Three pieces of wood found in the course of excavations at Madras Harbour.

Mysore Government, Bangalore—
Gold Virarāya fanam.

Nellore District Forest Officer—
Samples of Pegmatite exhibiting dendritic markings.

Quirke, I.M.S., Captain M. G.—
Waterbug (*Belostoma indicum*) from Madras.

Ramunni Menon, B.A., Mr. K.—
Cæcilians (*Uraeotyphlus malabaricus*) from Kondotti, South Malabar.

Robinson, Mr. W. W.—
Sea urchin and six fish from Madras Harbour.

Royal Asiatic Society, Bombay Branch—
Four silver coins of Zaman Shah Durani, Muhammad Shah Durani, Shah Shujah and Muhammad Shah.

Twelve silver coins—One of Abkar, two of Shah Jahan I and nine of Aurangzeb.
Nine silver coins of—Shah Rukh of Persia; Nadir Shah of Persia; Ahmad Shah Durani; Aurangzeb—Moghul; Shah Alum Bahadur—Moghul; Muhammad Shah—Moghul; Alamghir II; Ahmad Shah Bahadur; Farruksiyar.

Shillong, Provincial Cabinet of Coins—
Seven silver coins—Sultans of Bengal (from Sylhet district).
Four silver coins—Sultans of Bengal (from Dacca district).

Smith, M.A., Mr. W. Erlam—
Tusser silk moth (*Antheræa paphia*).
Hawk-moth (*Daphnis nerii*).

Stoney, Mr. R. F., Executive Engineer, Madras—
Peregrine falcon (*Falco peregrinus*), Swinhoe's snipe (*Gallinago megala*), Jack snipe (*Gallinago gallinula*), } all from the Chingleput district.

Superintendent, Archæological Survey, Southern Circle, Madras—
Brick from the Buddhist buildings at Rāmathīrtham, Vizagapatam district.
Coins found at Periyapatnam, Rāmnād district.

Superintendent, Archæological Survey, Southern Circle, Madras—*cont.*
Clay objects and seals from Rāmathīrtham, Vizagapatam district.
Inscribed stone from Hampi, Bellary district.
Black stone carved pillar and pilaster (half capital) from Tirumala Naik's Palace, Madura.

Superintendent, Central Jail, Vellore—
Samples of dyed woollen yarn used in the manufacture of carpets.

Tinnevelly, Executive Engineer—
Wooden door from the Fort at Anjengo.

Trivandrum, Director, Government Museum and Public Gardens—
The following birds from the Travancore hills :—
Bourdillon's babbler (*Rhopocichla bourdilloni*).
Bourdillon's blackbird (*Merula bourdilloni*).
Blanford's laughing thrush (*Trochalopterum meridionale*).
Wynaad laughing thrush (*Garrulax delesserti*).

United Provinces Government—
Eight thick Benares rupees of the East India Company found in the Jaunpur district.
Two Moghul rupees found in the Lucknow district.
Seventy-one Moghul rupees found in the Bulandshahr district.
Four Moghul rupees found in the Hamirpur district.

Two	do.	Agra district.
Two	do.	Banda district.
Two	do.	Bijnor district.
Twelve	do.	Sitapur district.

Seven Tughlak coins found in the Jhansi district.
Ten copper or billon Tughlak coins found in the Bara Banki district.
Six Moghul rupees found in the Allahabad district.
Thirteen Moghul rupees found in the Banda district.
Three gold coins (Sultans of Delhi) found in the Farrukhabad district.
Thirty-one Moghul rupees found in the Pilibhit district.
Seven Moghul rupees found in the Etah district.
Twelve copper coins (Tughlaq) found in the Banda district.
Six Moghul rupees (Akbar) found in the Partabgarh district.

Venugopal, B.A., Mr. S., Glass Works, Madras—
Collection to illustrate the materials used in glass-making at Madras and specimens of the finished ware.

Waghorne, F.R.I.B.A., Mr. W. J.—
Sea-urchin (*Stomopneustes variolaris*) from Waltair.

APPENDIX B.

Classified List of Expenditure of Government Museum, Connemara Public Library, and Marine Aquarium, during the year 1911-1912.

Government Museum and Connemara Public Library.

	Actuals, 1911-1912.	Revised estimate, 1911-1912.
	Rs.	Rs.
Salaries—		
Superintendent	7,050	7,050
Local allowance	191	190
Total ..	7,241	7,240
Permanent establishment, Government Museum—		
Herbarium keeper, first assistant, second assistant, writer, assistant writer, senior and second taxidermists and 26 peons—33 persons	6,406	6,650
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons ..	2,166	2,010
Total, Establishment ..	8,572	8,660
Allowances—		
Travelling allowance	1,146	1,500
Grain compensation allowance	623	600
Total, Allowances ..	1,769	2,100
Coronation bonus	218	..
Supplies and Services—		
Cost of specimens purchased on tour	160	
Objects of interest and coins purchased at head-quarters	945	
Fittings, furniture, etc., for the collection	1,629	
Cost of books and publications	901	
Library	1,972	
Lithographic plates	20	6,500
Ammunition	18	
Charges for feeding live animals	315	
Expenses—reading coins	..	
Cost of indented Europe stores	370	
Cost of locally purchased stores	122	
Freight on Europe stores	138	
Total, Supplies and Services ..	6,590	6,500
Contingencies—		
Purchase and repair of furniture	131	
Tour charges	213	
Cleaning charges	393	
Postage and telegraph charges	131	
Telephone charges	* 75	
Rents, rates and taxes	7,029	9,200
Office expenses	1,134	
Hot and cold weather charges	29	
Pay of menials	619	
Miscellaneous	..	
Total, Contingencies ..	9,754	9,200

* Figures for the second half year not yet reported by the Accountant-General.

Marine Aquarium.

	Actuals, 1911-1912.	Revised estimate, 1911-1912.
	RS.	RS.
Permanent establishment, Marine Aquarium—		
Head-keeper, second keeper, third keeper and two door-keepers—5 persons	710	700
Famine batta	97	100
Total, Establishment ..	807	800
Coronation bonus	30	..
Supplies and Services—		
Food for animals	798	819
Fittings, etc., for the collection	241	
Cost of locally purchased stores	23	
Total, Supplies and Services ..	1,062	819
Contingencies—		
Rents, rates and taxes	196	1,300
Postage and telegraph charges	..	
Office expenses	97	
Purchase and repair of furniture	29	
Miscellaneous	25	
Pay of menials	1,029	
Cleaning charges	1	
Tour charges	28	
Total, Contingencies ..	1,405	1,300
Total, Marine Aquarium ..	3,304	2,919
Grand Total ..	37,448	36,619

Order—No. 659, Educational, dated 20th July 1912.

Recorded.

2. The thanks of Government are due to the persons who made donations to the museum during the year.

(True Extract.)

L. DAVIDSON,
Ag. Secretary to Government.

To the Superintendent, Government Museum.
,, Director of Public Instruction.
,, Accountant-General.
,, Public Department.
,, Revenue Department.
,, Public Works Department (with reference to paragraph 3 of report).
,, Director-General of Archæology (with C.L.).
,, Superintendent, Archæological Department, Madras.
Editors' Table.

Government of Madras.

EDUCATIONAL DEPARTMENT.

Read. } 1913. *Enclosures*

Read. *Spare copies*

G.O. No. 669, 19th July 1913.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

Government Museum.

Recording, with remarks, report on the working of the —, the Marine Aquarium and the Connemara Public Library for the year 1912–13.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

Read—the following paper :—

Letter—from J. R. Henderson, Esq., M.B., C.M., F.L.S., Superintendent, Government Museum.
To—the Secretary to Government, Educational Department.
Dated—Madras, the 7th July 1913.
No.—491.

I have the honour to forward for submission to His Excellency the Governor in Council the report on the working of the Government Museum, the Marine Aquarium and the Connemara Public Library during the year 1912–13, and to request that I may be supplied with 160 copies for distribution to other museums, etc.

Enclosure.

Administration Report of the Madras Government Museum, etc., for 1912–13.

I left for England on combined privilege leave and special leave on the 5th May, and Dr. Murray Stuart acted as Superintendent and Principal Librarian, till my return to duty on the 1st November, without prejudice to his duties as Professor of Geology, Presidency College, Madras. My thanks are due to Dr. Stuart for the efficient manner in which he carried on the work during my absence.

2. Visitors.—The numbers during the year under review, as well as for the preceding year, were as follows :—

	1911–12.	1912–13.
Total number of visitors to the Old Building	326,968	426,809
Total number of visitors to the New Building ..	335,663	425,742
Largest number of visitors on a single day to the Old Building	45,384	64,238
Largest number of visitors on a single day to the New Building	35,414	65,549
Total number of visitors on Sundays to the Old Building	55,311	74,322
Total number of visitors on Sundays to the New Building	57,765	68,586
Total number of gosha female visitors (on the first Saturday in each month)	10,818	16,403

As usual Kannu Pongal (15th January) was the day on which the Museum was attended by the largest number of visitors.

His Excellency Lord Pentland visited the Museum on two occasions. It was also visited during the year by Her Excellency Lady Pentland, by Lord Islington and other members of the Public Service Commission, and by the Hon'ble E. S. Montagu, Under Secretary of State for India.

3. Buildings.—The new office for clerks was completed and occupied in December. The construction of the extensions to the Sculpture and Economic Galleries, which was commenced in the year under report, is in an advanced stage and it is hoped that they will be ready for use in about three months.

4. Theatre.—The theatre was used on fourteen occasions during the year as follows :—

Amateur Dramatic Society's entertainments	7
Madras Magic Circle's entertainments	2
Inaugural meeting of the Madras Economic Association (at which His Excellency the Governor presided)	1
S.P.G. High School prize distribution	1
Doveton Girls' School prize distribution	1
Presidency Training School for Mistresses prize distribution	1
Collegiate School prize distribution	1

5. ESTABLISHMENT.—The First Assistant R. Damodaram Nayudu retired on pension with effect from the 16th August 1912, after a faithful service of thirty years in the Museum. By G.O. No. 792, Educational, dated 7th May 1912, Government sanctioned the employment of an assistant on Rs. 100—5—150 for the zoological section, and M.R.Ry. B. Sundara Raj, M.A., a local graduate in Zoology, was appointed to the new post on probation for one year with effect from the 20th December.

I am pleased to record that the entire staff worked well during the year.

6. HISTORICAL.—The historical section received the following additions :—

(1) A Dutch inscribed stone, formerly preserved at the Sub-Collector's office at Chingleput, commemorating the laying of the foundation stone, on 4th May 1749, of a fortification planned by Conrad Peter Keller which was probably part of the Dutch fort "Oranje" at Sadras in the Chingleput district. This fort was taken in 1781 by a British detachment under Captain George Mackay, Commandant of Chingleput, and the stone was in all probability taken to the latter place as a war trophy.

(2) A brass weight from Tranquebar bearing the crowned monogram of King Christian VII of Denmark (1786—1808) and dated 1806.

7. ARCHÆOLOGY AND ART.—Among the more noteworthy additions to this section are the following :—

(1) Cinerary urns and other objects from an ancient rock-cut tomb recently discovered near Calicut, to the existence of which attention was called by the Hon'ble Sir John Atkinson, K.C.S.I., and which was inspected by the Archæological Survey department at his instance. My thanks are due to Mr. Longhurst, Additional Superintendent, Archæological Survey, Southern Circle, for this addition to the collection and for an interesting report on the find.

(2) A Jain stone image from the village of Villivākkam in the neighbourhood of Madras. The Assistant Archæological Superintendent for Epigraphy refers to this ancient monument as "a rare object of historical interest" in page 5 of his report for 1910–11, recorded in G.O. No. 832, Public, dated 28th July 1911.

(3) Five sets of copper plates belonging to the Pāndya and Eastern Chālukya dynasties, received from the Assistant Archæological Superintendent for Epigraphy (items 1–5 in Appendix A to his report for 1911–12, recorded in G.O. No. 919, Public, dated 29th July 1912).

(4) A large series of wood-carvings representing Hindu mythological figures, chiefly from the Rāmaswāmi temple at Tādpatri in the Anantapūr district and the Srīnivāsaperumāl temple at Tirupati in the Chittoor district. These carvings belonged to temple cars and were presented to the Archæological department by the temple authorities. I am making arrangements to have this interesting series exhibited on the staircase in the New Building.

The following additions were made to the collection of South Indian bronze images :—Kāmātchi Amman, Vēnugōpālaswāmi, Amman and Vishnu, purchased by the Superintendent of the Archæological Survey, Southern Circle, from funds placed at his disposal by the Director-General of Archæology and lent to this Museum ; two figures of Siva found in the Nellore district, purchased by the same officer out of his office budget and transferred to this Museum ; a group of small Vaishnavite images from Srīrangam, Trichinopoly district, acquired under the Indian Treasure Trove Act.

Mr. Rea, Superintendent, Archæological Survey, Southern Circle, continued to be on special duty at the Museum in the work of arranging and cataloguing the antiquities. He has prepared and submitted to Government a catalogue of the prehistoric collection from Adichanallūr in the Tinnevelly district.

The collection of brass and of Bidri and silver ware exhibited in the Art Gallery was considerably augmented during the year. As the brass articles were previously exhibited in huge cases in which they were not seen to advantage and from which it was difficult to remove them for cleaning, I devoted some attention while on leave last year to the arrangements followed in English museums for the display of such objects. The old cases are accordingly being gradually superseded by cases similar

in pattern to those in use at the Victoria and Albert Museum, South Kensington, and the opportunity is being taken to classify the objects, as they had not formerly been arranged in any definite manner.

8. NUMISMATICS.—The following coins were acquired under the Treasure Trove Act :—

(1) A gold coin of the Chōla King Rājarāja, in a small bell-metal casket, from the Tanjore district.

(2) Two hundred and thirty-three Roman silver coins (denarii) found in the Coimbatore district, all belonging to two common types, of which several large finds have previously been made in Southern India. One hundred and eighty-four of the coins were struck during the reign of the Emperor Tiberius (14—37 A.D.) and the remainder in the reign of Augustus (29 B.C.—14 A.D.).

(3) Four half pagodas of Veṇkaṭa of the Vijayanagara dynasty, found in the Gōdāvari district.

(4) Fifty copper Tughlaq coins found in the Kistna district.

(5) Three Moghul pagodas and nineteen Moghul rupees, chiefly from the Imtiyāzgarh (Adōni) mint, found in the Bellary district.

(6) One Tughlaq gold coin, four gold coins of the Mameluk Sultans of Egypt, ten half pagodas of Harihara of Vijayanagara, and forty-seven small gold coins, apparently of Tughlaq or Moghul fabric, all found in the South Arcot district.

Specimens from the last three finds were distributed to the Indian Museum and other institutions in accordance with the rules to regulate proceedings under the Indian Treasure Trove Act (appended to G.O. No. 604, Public, dated 26th July 1907).

Seven copper coins (Muhammadan Viceroys of Madura, Pāṇḍya and Chōla) were presented by the Assistant Archæological Superintendent for Epigraphy. Five copper coins of the Eastern Chālukya dynasty were presented by M.R.Ry. D. V. Prakasa Row of Cocanada.

The most important coin acquired by purchase is an Indo-Danish lead piece from the Tranquebar mint, struck during the reign of Frederick III (1648–1670).

To the Governments of the Central Provinces and the Punjab, to the Central India and Rajputana Agencies, to the Asiatic Society of Bengal and to the Bombay Branch of the Royal Asiatic Society, the Museum is indebted for coins presented to it in the course of the year.

9. ECONOMIC AND BOTANICAL.—The Botanical Assistant made three tours during the year, viz., to the Kurnool district in July, to Travancore in October, and to the Gōdāvari district in January. These resulted in considerable additions to the Botanical and Economic sections, and in a number of photographs illustrating growing plants and methods of manufacture adopted in the case of various vegetable economic products. These photographs are exhibited near the objects to which they refer and the latter thereby rendered more interesting to the general public. It is hoped that in time the more important exhibits in the Economic Gallery will be illustrated in this way. Among the economic products collected were the following :—

(1) From the Kurnool district, bark, fibre and rope from *Hardwickia binata*; reeds of a species of *Cyperus* used in the manufacture of mats ; varieties of cholam (*Andropogon sorghum*) peculiar to the district ; oil and oilcake from safflower (*Carthamus tinctorius*).

(2) From Travancore, fibre from *Helicteres isora* and *Sterculia urens* ; bark from *Antiaris toxicaria* used as a natural cloth by the hill tribes; gums and resins from *Vateria indica*, *Pterocarpus marsupium*, *Stereospermum xylocarpum* and *Hardwickia pinnata* ; flour from *Cycas circinalis* and *Corypha umbraculifera* ; reeds of the bamboo *Oxytenanthera thwaitsii* ; and samples of rubber and rubber-tapping instruments.

(3) From the Gōdāvari district, varieties of country hemp and sunn hemp; tubers of different species of *Dioscorea* and of *Ipomea batatas* used as food; various tanning barks and timber specimens; and local varieties of paddy, of the pigeon pea (*Cajanus indicus*) and of sugar-cane.

In the Botanical Gallery the paper of a large number of the framed herbarium sheets had become discoloured, and about eighty of the specimens were remounted on white paper and provided with printed labels. The index collection in the Economic Gallery has been rearranged and labels giving a summary of the contents have been added to the exterior of each case.

10. Geology and Mineralogy.—I am indebted to Mr. H. M. A. Cooke, Vice-Chairman of the Kolar Gold Field Mining Board, for an interesting series of exhibits to illustrate the cyanide process of the extraction of gold. The Museum collection formerly only possessed exhibits connected with the pan-amalgamation process which was discontinued at Kolar about seventeen years ago.

Among the additions to this section are the following:—

(1) From Travancore, pegmatite, norite and leptynite, also quartz, garnet, ilmenite and monazite sands.

(2) From Coimbatore, quartz crystals and plagioclase felspar, acquired by purchase.

11. Natural History.—In a tour which I made to the Rāmnād district in February, accompanied by Mr. S. W. Kemp of the Indian Museum, Calcutta, ten days were spent in making collections of the rich marine fauna on the coral reef at Kilākarai. The working out of these collections will take some considerable time, but the specimens are being gradually incorporated with the exhibits in the zoological galleries. The opportunity was taken during this tour of instructing the new Zoological Assistant in methods of collecting and preserving specimens. Tours were also made by the senior Taxidermist to the Kurnool district in July, and by the second Taxidermist to the Nellore district in October.

Among the more important additions to the zoological section the following may be noted:—

(1) A specimen of the Great Snipe (*Gallinago major*) shot by Mr. G. L. Peters near Arkonam on 30th March. This species inhabits Europe and western Asia; yet the only specimens hitherto met with in India, three in number, have all been found in South India.

(2) The following other birds new to the collection:—Great Eared Nightjar (*Lyncornis cerviniceps*) obtained in August at Tinnevelly by the Hon'ble Mr. W. Francis, I.C.S.; Indian River Tern (*Sterna seena*) and Indian Shag (*Phalacrocorax fuscicollis*) both from the Nellore district. The Great Eared Nightjar is a very local bird in Peninsular India, having only been found previously on the Travancore hills; owing to delay in the post the Tinnevelly specimen unfortunately arrived in a decomposed state and could not be set up.

(3) The following reptiles new to the collection:—a Loggerhead Turtle (*Thalassochelys caretta*) from Madras, five and a half feet in length, which lived for a considerable time in the Marine Aquarium; the Ceylon race (var. *thermalis*) of the common Pond Tortoise (*Geoemyda trijuga*) from Kilākarai.

(4) A collection of fresh-water fish comprising thirty-six species, from the neighbourhood of Madras, the majority of which were collected by the Zoological Assistant before he joined the Museum staff.

In addition to the above a considerable number of specimens, chiefly birds, have replaced older and less perfect ones in the collections.

Exhibits to illustrate the natural surroundings and habits of common South Indian animals have been placed in the galleries, and it is hoped to add considerably to this series in the future. They comprise a section of the burrow of the common black Scorpion (*Palamnæus fulvipes*), and nests of the Trap-door Spider (*Acanthodon constructor*) and of the Carpenter Bee (*Xylocopa tenuiscapa*) also in section.

In a collection of crabs sent by the Trivandrum Museum for identification was a new variety (var. *travancorica*) of a species previously described by myself from Cochin State (*Paratelphusa malabarica*) which has been figured and described in the Records of the Indian Museum. While on leave I prepared a report on the scorpions collected during the Abor Expedition which has since been published in the Records of the Indian Museum, and the opportunity was taken of a somewhat lengthy period of study at the British Museum (Natural History Department) to work out a series of South Indian scorpions belonging to the Madras Museum.

In the vivarium the experiment was made of keeping live insects, and a case containing numerous specimens of the large and gaudy Painted Grasshopper (*Pœcilocera picta*) made an attractive exhibit during the cold weather. One of two specimens of the dangerous little viper *Echis carinata*, received on the 20th October 1911, gave birth to ten young ones on the 6th July in the following year. Another specimen of this viper, captured in the Museum compound, was added to the live animal collection during the year. As the species is not known to occur within municipal limits in Madras this specimen had probably been carried into the compound with laterite which was being used to mend the roads.

12. MARINE AQUARIUM.—The Aquarium continued to maintain its popularity. The total number of visitors during the year under review and the amount realized in entrance fees, were 126,843 and Rs. 4,758 against 124,966 and Rs. 4,654 in the previous year. The largest number of visitors on any single day was 4,576 on Kannu Pongal (15th January). The total admissions on Wednesdays, when the entrance fee is four annas, and on gosha and ordinary days when the fee is one anna in the forenoon and half an anna in the afternoon, are shown below :—

	Morning.	Afternoon.	Total.
Wednesdays	391	1,412	1,803
Gosha days	181	2,387	2,568
Other days	12,389	110,083	122,472

A reprint of the Guide to the Aquarium, consisting of two thousand copies was published in May and nearly eight hundred copies were sold during the year.

13. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 19,207 against 18,574 in 1911–12 :—

Largest number of readers in a day	148
Smallest „ „	22
Largest „ on Sunday	144
Smallest „ „	46

The number of standard works added to the library was 347, of which 311 were purchased and the rest presented. Among the books acquired may be mentioned Lockyer's "Account of the Trade in India" (1711), which contains an interesting account of Madras in 1704, a "Memorial by Lord Bentinck containing an account of the Mutiny at Vellore" (1810), and Rodriguez's "Hindoo Castes," volume I (all published), a work which appeared at Madras in 1846 and is now scarce.

The fourth supplement to the library Catalogue of Books under Authors' Names was published during the year. The work of preparing a Subject-Index of the books in the library has been completed and every endeavour will be made to issue it at as early a date as possible.

A statement of the number of books issued to readers during the last two years, under the various subject catalogue heads, is subjoined :—

	1911–1912.	1912–1913.
Anatomy ; biology ; natural history ; zoology	912	968
Anthropology ; folklore	496	472
Archæology ; architecture	237	382
Arts ; industries	1,267	1,283
Atlases ; maps	72	86
Belles lettres	4,608	5,016
Botany ; arboriculture ; horticulture	209	274
Chemistry ; agriculture ; photography	297	308
Classics	206	157

	1911-1912.	1912-1913.
Dictionaries; encyclopædias; gazetteers; manuals	5,291	6,845
Economic products	294	263
Education; ethics; logic	885	981
Exhibitions	19	27
Forestry; timbers	47	62
Geography; physical geography; physiography	92	119
Geology	104	95
History	3,529	4,637
Jurisprudence	382	369
Medicine; surgery; pathology	337	405
Microscopy	28	16
Mineralogy; metallurgy	164	182
Natural philosophy	598	608
Numismatics; medals; heraldry	89	92
Philology; epigraphy	896	1,308
Photographs	142	160
Physiology	308	348
Public health	104	92
Religion	1,408	1,548
Sport and games	182	265
Travels; voyages	261	206
Vernacular languages	46	68
Fort St. George Gazette (other than current issues)	719	842

14. UNIVERSITY LIBRARY.—The question of a separate building for the Library is still under the consideration of the Syndicate of the University.

The printing of the Catalogue of Books under Authors' Names is in an advanced stage, and it is hoped that it will be published in a few months.

The Library was, as in previous years, used by a number of post-graduate students and others engaged in special research. It will be opened for general use as soon as the catalogue is ready.

15. VALUABLE STOCK.—The necessary inventory was maintained and duly checked.

The usual list of donations and statement of expenditure are appended.

APPENDIX A.

DONATIONS, 1912-1913.

Additional Superintendent, Archæological Survey, Southern Circle—
Four large cinerary urns.
Three annular stands (broken).
Two medium size urns.
Two jars.
A small jar.
A tray with legs.
All from a rock-cut tomb near Calicut.

Antony, Mr. R. N.—
Trap-door spider (*Acanthodon constructor*) with its nest, from Madras.

Arockiasawmy Pillai, Mr. J. P.—
Slough of Rat snake (*Zamenis mucosus*) from Shoranur, Malabar district.

Assistant Archæological Superintendent for Epigraphy, Southern Circle—
Seven copper coins (Mohammadan Rulers of Madura, Pāṇḍya and Chōla).

Bickham, Mr. W. S.—
Butterfly chrysalis.

Bird, Mrs. F. D.—
Caterpillar of Hawk-moth.
Mantis.

Bobbili, H. H. the Maharaja of, K.C.I.E.—
Embroidered coat and vest.

Bourne, Lady—
Skin of peacock (*Pavo cristatus*).

Boys, Mr. H.—
Mantis.

Campbell, Mr. Allan, Executive Engineer, P.W.D., Calicut—
Two crabs (*Calappa hepatica*) from Kalpeni, Laccadive Islands.

Central India, First Assistant to the Agent to the Governor-General—
Three silver coins [Gadhaiya (2) and Vigrah Dramma (1)] found in Punohewa village, Panth Piploda estate, Malwa Agency.

Central Provinces, Director of Agriculture—
One gold coin (Gangaya Deva) found in the Saugor district.
Four gold coins found at Robinkhed, Buldana district.

Champaram, Behar and Orissa, District Officer—
Two gold coins found at Pipra.

Cooke, Mr. H. M. A.—
Specimens to illustrate the cyanide process of gold extraction.

Corporation of Madras—
Lion (*Felis leo*).
Lemur (*Lemur fulvus*).
Five parrots (various species).
Three pheasants (various species).
New Guinea Pigeon (*Goura coronata*).
All from the Menagerie, Peoples' Park.

Cross, Mr. F.—
Mangan-apatite (chlor-fluor variety) found in the Tinnevelly district.

Devanesan, B.A., Mr. D. W.—
Collection of lizards (*Sitana ponticeriana, Cabrita leschenaultii, Mabuia carinata, M. vertebralis* and *M. macularia*.)
Tiger beetles.
All from Tripatur, Rāmnād district.

Devasahayam, Rev. V.—
Four Indo-Danish copper coins of Frederick VI and Christian VIII.

Ettiyapuram, Raja of—
Malformed cocoanut.

Evers, Mr D. J.—
Nest and eggs of Tailor-bird (*Orthotomus sutorius*).

Francis, I.C.S., the Hon'ble Mr. W.—
Great Eared Nightjar (*Lyncornis cerviniceps*) from Tinnevelly.

Giffard, C.S.I., I.M.S., Lieut.-Col. G. G.—
Skull of Hippopotamus (*H. amphibius*).

Gopalan, M.R.Ry. M.—
Two slugs (*Vaginulus* sp.) from Trichur, Cochin State.

Govindoss Chaturbhuja Doss, Diwan Bahadur—
Musk deer (*Moschus moschiferus*) from North India.

Hannyngton, I.C.S., Mr. F.—
Various insects.
Breeding cage for insects.

Iyaswami Pillai, Mr. P. V.—
Slough of Python (*Python molurus*).

Kohlhoff, Mr. C.—
Large spider (*Pœcilotheria* sp.) from Cochin State.

Lahore Central Museum, Curator—
Five Moghul rupees.
Four Moghul rupees found at the Central Jail, Multan.

Loganatha Mudaliyar, Mr. M. L.—
Queen white ant.
Two Butterflies (*Papilio hector*) from Madras.

Martin, Mr. A. F.—
Living Chameleon (*Chamæleon calcaratus*) from Srivilliputtur, Rāmnād district.

Numismatic Secretary, Asiatic Society of Bengal—
Moghul rupee.

Newton, Mr. G. H.—
Sample of wood attacked by a boring beetle (*Bostrychus* sp.) from Villupuram, South Arcot district.

Peters, Mr. G. L.—
Great Snipe (*Gallinago major*) from Arkonam, North Arcot district.

Prakasa Row, B.A., Mr. D. V.—
Five copper coins of the Eastern Chālukya dynasty from Vengi, Ellore taluk, Kistna district.

Raghavendra Rao, Mr. K.—
Two fish (*Haplochilus melanostigma*) from Tiruvottiyur, Chingleput district.

Rajputana Museum, Superintendent—
Fifteen billon coins of Qutub-ud-din Mubarak, and Ghyas-ud-din Tughlaq, dated 716 to 727 A.H., found at Kanpura, Ajmeer district.

Royal Asiatic Society, Bombay Branch—
Three silver coins—Baroda State rupee and half-rupees (from Broach district).
One copper coin—Ahmad Shah I. of Gujarat (from Kaira district).

Royappa Pillai, Mr. M.—
Centipede, from Rāmnād.

Samalkot, Manager, Government Farm—
Varieties of sugar-cane.

Sankariar, B.A., B.L., Mr. R. S.—
Earth-snake (*Typhlops braminus*) from Sivaganga.

Silver, M.A., Rev. A.—
Scorpion (*Palamnæus fulvipes*).
Solifuge (*Galeodes indicus*).
Bath from Sholinghur, North Arcot district.

Stoney, Mr. F. F., Executive Engineer, Madras—
Pintail Snipe (*Gallinago stenura*).
Long-armed sheath-tailed bat (*Taphozous longimanus*).
Bicoloured leaf-nosed bat (*Hipposiderus bicolor*).
Spider.
All from Madras.

Sundara Raj, M.A., Mr. B.—
Specimens of a Phyllopod (*Streptocephalus dichotomus*) from Madras.
A named collection of fresh-water fish from the neighbourhood of Madras.

Todd, Mr. A. H. A.—
Abnormal egg with a second egg inside.

Trivandrum, Director, Government Museum and Public Gardens—
Crab (*Plagusia tuberculata*) from Travancore.

Wills, Mr. H. R.—
Live snake (*Cerberus rhynchops*) from Madras.

APPENDIX B.

Classified List of Expenditure of Government Museum, Connemara Public Library, and Marine Aquarium, during the year 1912–1913.

GOVERNMENT MUSEUM AND CONNEMARA PUBLIC LIBRARY.

	Actuals, 1912–1913.	Revised estimate, 1912–1913.
	RS.	RS.
Salaries—		
Superintendent	5,361	5,400
Local allowance	420	420
Total ..	5,781	5,820
Permanent establishment, Government Museum—		
Zoological assistant, herbarium keeper, first assistant, second assistant, writer, assistant writer, senior and second taxidermists and 28 peons—36 persons ..	7,215	8,270
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons ..	2,341	2,325
Total, Establishment ..	9,556	10,595
Allowances—		
Travelling allowance	785	700
Grain compensation allowance	700	792
Total, Allowances ..	1,485	1,492
Supplies and Services—		
Cost of specimens purchased on tour	322	
Objects of interest and coins purchased at head-quarters	447	
Fittings, furniture, etc., for the collection	2,053	
Cost of books and publications	896	
Library	1,735	
Lithographic plates	35	7,674
Ammunition	15	
Charges for feeding live animals	338	
Expenses—reading coins	5	
Cost of indented Europe stores	227	
Cost of locally-purchased stores	178	
Freight on Europe stores	65	
Total, Supplies and Services ..	6,316	7,674
Contingencies—		
Purchase and repair of furniture	96	
Tour charges	131	
Cleaning charges	420	
Postage and telegraph charges	110	
Telephone charges	75	11,638
Rents, rates and taxes	4,473	
Office expenses	1,196	
Electric lights and fans	65	
Pay of menials	854	
Miscellaneous	67	
Total, Contingencies ..	7,487	11,638

Marine aquarium.

	Actuals, 1912-1913.	Revised estimate, 1912-1913.
	Rs.	Rs.
Permanent establishment, Marine Aquarium—		
Head-keeper, second keeper, third keeper and two door-keepers—5 persons	760	756
Famine batta	108	108
Total, Establishment ..	868	864
Supplies and Services—		
Food for animals	751	
Fittings, etc., for the collection	400	
Cost of locally-purchased stores	17	1,055
Cost of indented Europe stores	78	
Freight on Europe stores	1	
Total, Supplies and Services ..	1,247	1,055
Contingencies—		
Rents, rates and taxes	196	
Postage and telegraph charges	..	
Office expenses	151	
Purchase and repair of furniture	2	1,862
Miscellaneous	20	
Pay of menials	1,511	
Cleaning charges	..	
Tour charges	53	
Total, Contingencies ..	1,933	1,862
Total, Marine Aquarium ..	4,048	3,781
Grand Total ..	34,673	41,000

Order—No. 669, Educational, dated 19th July 1913.

Recorded.

2. The thanks of Government are due to the persons who made donations to the museum during the year.

(True Extract.)

W. Francis,
Ag. Secretary to Government.

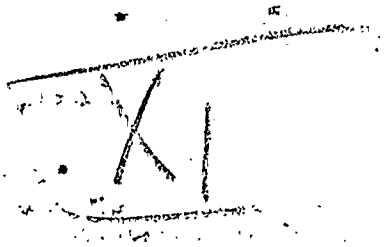
To the Superintendent, Government Museum.
,, Director of Public Instruction.
,, Accountant-General.
,, Public Department.
,, Revenue Department.
,, Director-General of Archæology (with C.L.)
,, Public Works Department with reference to paragraph 3 of report.
Editors' Table.

Government of Madras.

EDUCATIONAL DEPARTMENT.

Recd	1914.	*Enclosures*
Regd.		*Spare copies*

G.O. No. 846, 18th July 1914.



Government Museum.

g, with remarks, the report on the working of the —, the Marine Aquarium and a Public Library for the year 1913-14.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper :—

Letter—from J. R. HENDERSON, Esq., M.B., C.M., F.L.S., Superintendent, Government Museum.
To—the Secretary to Government, Educational Department.
Dated—Madras, the 7th July 1914.
No.—542.

I have the honour to forward for submission to His Excellency the Governor in Council the report on the working of the Government Museum, the Marine Aquarium and the Connemara Public Library during the year 1913–14 and to request that I may be supplied with 200 copies for distribution to other Museums, etc., as the 160 copies usually supplied have been found insufficient.

ENCLOSURE.

Administration Report of the Madras Government Museum, the Marine Aquarium and the Connemara Public Library, for 1913-14.

VISITORS.—The numbers of visitors to the Museum during the year under review, as well as for the preceding year, were as follows :—

	1912-13.	1913-14.
Total number of visitors to the Old Building	426,809	448,489
Total number of visitors to the New Building ..	425,742	447,990
Largest number of visitors on a single day to the Old Building	64,238	72,794
Largest number of visitors on a single day to the New Building	65,549	69,603
Total number of visitors on Sundays to the Old Building	74,322	76,828
Total number of visitors on Sundays to the New Building	68,586	74,102
Total number of gosha female visitors (on the first Saturday in each month)	16,403	20,248

As usual Kannu Pongal (16th January) was the day on which the Museum was attended by the largest number of visitors. As both it and the Dwadasi festival happened to fall this year on Fridays, the Museum was specially kept open on the two days.

The Museum was visited by Her Excellency Lady Hardinge on the occasion of the Viceroy's visit to Madras in November. It was also visited during the year by Their Excellencies Lord and Lady Pentland.

2. BUILDINGS.—The construction of the extensions to the Archæological and Economic Galleries has taken longer than was expected, but they will, it is hoped, be completed shortly.

The Museum office was fitted with an electric installation during the year.

The Theatre was used on eighteen occasions, four of these being Museum popular lectures and seven performances of the Madras Amateur Dramatic Society.

3. ESTABLISHMENT.—The writer, P. Ethirajulu Naicker, retired on pension with effect from 1st November 1913, after a service of over thirty-two years. By G.O. No. 877, Educational, dated 23rd September 1913, Government sanctioned the employment of four additional peons, one for the Museum office, one for the Connemara Library, one for the Bruce Foote collection of prehistoric antiquities and one to serve as an extra chickledar or cleaner of metalware. Government have also sanctioned (G.O. No. 1000, Educational, dated 4th November 1913) the employment of an Assistant in Archæology on Rs. 100—5—150.

I am pleased to record that the entire staff worked well during the year.

4. Museum Demonstrations and Lectures.—With the co-operation of the Educational Department, arrangements were made for demonstrations in the Museum to pupils of the higher classes of High Schools in Madras city. The plan, which commenced early in November, consisted in giving instruction for a period of not less than one hour every Monday and Tuesday afternoon to parties of seventy-five pupils divided into three batches, each accompanied by a teacher to maintain discipline One batch was conducted by the Zoological Assistant over the zoological collections, the second by the Botanical Assistant over the botanical and economic collections, and the third by myself over the remaining sections of the Museum. The arrangements with regard to the schools participating in the demonstrations were made by the Educational Department, and regular programmes were drawn up. The method adopted in imparting instruction consisted in taking a comparatively small number of typical exhibits to illustrate general lessons, avoiding all technicalities and details. I am convinced that the pupils' interests are awakened during these visits, and that it is possible by means of the demonstrations to impart useful information which is not included in the ordinary school curriculum. I am glad to add that the time thus spent is reckoned part of the ordinary school attendance. The total number of pupils who attended the demonstrations in the year under review was 1,563.

In addition to these demonstrations to schoolboys, a series, also arranged for by the Educational Department, was given to teachers in Madras schools by myself on Saturdays, from 10 to 11 A.M. during November and December last. The instruction consisted chiefly in demonstrating and commenting on those exhibits which are most suitable for general lessons, should the teachers desire to conduct their pupils over the Museum. There were seven demonstrations at which 182 teachers were present.

On Saturday afternoons in November and December I delivered four popular lectures in the Museum Theatre on "the Common Vertebrate Animals of Madras", illustrated by exhibits from the Museum collections. The lectures were intimated in the local newspapers and in all the Madras first-grade colleges. They attracted fair audiences, chiefly of students, but as in order to obviate artificial lighting of the Theatre, they were held from 4 to 5 P.M., the time was probably not very convenient for the general public.

5. Centenary of the Indian Museum.—I was deputed by Government to attend the Centenary Anniversary of the Indian Museum at Calcutta in January. With the permission of Government, I prolonged my stay at Calcutta for a few days in order to study the arrangements in the archæological and economic sections of the Indian Museum, in connection with the re-arrangements to be effected in this Museum as a result of the extensions referred to earlier in the present report.

6. Archæology and Art.—Among the more noteworthy additions to this section are the following:—

(1) Two inscribed stone slabs discovered at Dharānikōta in the Guntūr district, bearing records in Telugu of about the beginning of the twelfth century A.D. They are of special interest because they record gifts to the Buddhist shrine at Dharānikōta, *i.e.*, the well-known Amarāvati stupa, which presumably was still in good condition at this period.

(2) Copper images of fine workmanship, consisting of Siva and Pārvāti with Bālasubrahmanya, Siva, Ganēsa, Chandēswara and a goddess, found during excavations conducted in connection with the Nellore Municipal water-works and acquired under the Indian Treasure Trove Act.

(3) Copper images of Vishnu, Rāma, Sita and Lakshmana, found in a well at the old temple in the Vellore Fort and acquired under the Treasure Trove Act.

The wood-carvings of Hindu mythological figures from Tādpatri and Tirupati, referred to in the last annual report, have been exhibited on the staircase in the New Building. The metalware collection was augmented by numerous purchases during the year. The re-arrangement of the exhibits in the Art Gallery which was commenced in the preceding year is almost completed.

A case containing representative examples of old Chinese porcelain, used by Muhammadans in South India, has been added to the Art Gallery. Some of the pieces bear the name and titles of the Nawab Wallajah (Muhammad Ali, Nawab of the Carnatic, from 1749 to 1795 A.D.) and of his son Amir-ul-Umra who predeceased him.

Mr. Rea, Superintendent, Archæological Survey, Southern Circle, continued to be on special duty at the Museum till his retirement in October; it is hoped that his catalogue of the prehistoric remains from Adichanallūr and Perumbair will be published before long. Arrangements for distributing the duplicate prehistoric specimens to other Museums were almost completed at the end of the year.

Some time after the death, in December 1912, of Mr. R. Bruce Foote, F.G.S., late of the Geological Survey of India, the catalogue prepared by him of his collection of Indian prehistoric and protohistoric antiquities, which had been purchased by Government for the Museum in 1904, was sent to me for revision. Though the work had passed through several proofs which were revised by the author, a considerable amount of revision has still been found necessary. It consists of two parts:—(1) the Catalogue Raisonné and (2) Notes on the ages and distribution of the antiquities. The former will be published shortly; but the second part is still under revision.

7. Numismatics.—The following coins were acquired under the Indian Treasure Trove Act:—

(1) A gold Persian tōman found in the Malabar district.

(2) Fifteen gold dinars of the Khalifs found in the Tinnevelly district.

(3) One hundred and thirty-two gold fanams and a miscellaneous assortment, chiefly of copper coins, found in the Cuddapah district. The fanams were struck probably by Nawabs of Cuddapah (Khurpa) in the names of the Moghul emperors Ahmad Shah, Alamgir II and Shah Alam, and they furnish no fewer than twelve different dates.

(4) Eight East India Company's rupees minted at Munbai (Bombay), five silver coins of the Ali Rajas of Cannanore, and fifty-six French colonial coins (one-fifth rupee) struck for Mahé, all found in the Malabar district. The Mahé coins furnish some unrecorded dates.

(5) A large number of Āndhra lead coins of the usual horse type, found in the Anantapūr district.

(6) A gold fanam of Tippu Sultān found in the Malabar district.

(7) Eight gold coins of the Sultāns of Delhi found in the Nīlgiri district.

Specimens of the above coins have been distributed to the Indian Museum and other institutions, in accordance with the rules to regulate proceedings under the Indian Treasure Trove Act (appended to G.O. No. 604, Public, dated 26th July 1907).

A considerable number of coins were purchased locally and in Holland during the year, the most interesting of these being some of the rare lead issues of the Tranquebar mint, struck for the Danish kings Christian IV, Frederick III and Christian V.

To the Governments of Bengal, Bihar and Orissa, the Central Provinces, and the United Provinces, to the Central India Agency, to the Bombay Branch of the Royal Asiatic Society, and to the Darbars of Jaipur and Jāth, the Museum is indebted for coins presented to it in the course of the year.

8. Industries.—The exhibits in the Fabrics Room, which were formerly too crowded, have been re-arranged and the opportunity has been taken to eliminate the blocks of pattern designs used in the indigenous hand-printing on cotton industry, of which there was a very large number, chiefly from the North Arcot, Kistna and Nellore districts. Direct prints of all the blocks have, however, been taken and they are shown on a revolving stand. This forms an attractive exhibit and brings out the great variety and artistic taste displayed in the designs. The blocks, though withdrawn from the public gallery, are preserved in the Museum and will be available for examination to those specially interested in them.

9. Economic and Botanical.—Two tours were made during the year by the Botanical Assistant; one to South Arcot early in September and the other to Malabar at the end of September. As a result a considerable number of additions to the botanical and economic sections were obtained, together with photographs illustrating growing plants and the methods of manufacture adopted in the case of various vegetable products. Among the economic products collected were the following:—

(1) From the South Arcot district, fruiting spikes of the chief food grains and spikes of cumbu attacked by a fungus (*Sclerospora graminicola*); fibre of the wild date-palm (*Phœnix sylvestris*); oil and oil-cake of ground-nut (*Arachis hypogœa*); mats made from the leaves of *Pandanus odoratissimus*; the bark of *Cratæva religiosa* and *Poinciana elata*, used medicinally.

(2) From Malabar, tubers of *Caladium esculentum*, seeds of *Cycas circinalis* and the rhizome of Indian arrowroot (*Curcuma aromatica*) all used as food; the bark of *Acacia intsia* used as a soap substitute; oil from *Calophyllium inophyllum* and *Strychnos nux-vomica*; a series of baskets and other receptacles made from palmyra, areca and bamboo.

Fibre was extracted at the Museum from the bark of *Odina wodier*, *Melia azadirachta* and *Adansonia digitata*. The fibre from the last named tree makes excellent ropes.

A number of new herbarium specimens have been exhibited alongside the economic products. Small outline maps of the Madras Presidency were prepared during the year at the Survey office and are being coloured to show the distribution of the chief economic plants.

In the Botanical Gallery a large number of the framed herbarium sheets have been remounted and provided with printed labels. Growing plants of *Mimosa pudica* have been exhibited to show movements in response to mechanical stimuli.

10. Geology and Mineralogy.—A collection of one hundred and thirty-seven samples of building stone used in the different districts of the Presidency was received from the Department of Public Works, together with notes enumerating the more important buildings made from the chief varieties. They will be exhibited in the extension to the Economic Gallery when it is completed.

Among the additions to this section are the following:—

(1) A prepared section to show the various strata passed through in excavations at the Buckingham Mill, Madras, including specimens of estuarine shells found at a depth of 21 feet.

(2) Tourmaline in quartz from Guvvalacheruvu, Cuddapah district, received from the Collector of Cuddapah.

(3) Cut and polished specimens of blue and green quartz obtained locally.

11. Natural History.—Three tours were made during the year by the Zoological Assistant and the Second Taxidermist, to Tāda, Nellore district, in July, to Udayagiri, Nellore district, in September and to South Coorg in March, which have resulted in considerable additions to the zoological collections.

Among the more important accessions to this section the following may be noted:—

(1) In accordance with the undertaking made by the Bombay Natural History Society to present this Museum with duplicates obtained by their Mammal Survey collectors in South India, a consignment of forty skins and skulls from the Bellary district, Mysore and Coorg was received, including the following recent additions to the Indian fauna:—*Cremnomys cutchicus*, *Leggadilla surkka*, and *Myotis peytoni*.

(2) A large male Orang-Utan from the People's Park, Madras, presented by the Corporation of Madras. Although it is contrary to the policy of the Museum to include specimens which are not South Indian, it was felt that the general interest of this anthropoid ape entitled it to special consideration. It has accordingly been mounted and exhibited in the central hall of the Old Building where it attracts a considerable amount of attention.

(3) Several species of birds new to the collection, among which is a specimen of the North Indian *Acridotheres ginginianus* (Bank Myna) captured at Vandalūr, Chingleput district, in January.

(4) A number of interesting reptiles and amphibians among which the following may be specially mentioned—a Rock-snake (*Python molurus*) from the People's Park collection, presented by the Corporation of Madras, measuring 16 feet 6 inches in length, but which during life was supposed to be much longer; the lizards *Mabuia vertebralis* and *Hemidactylus giganteus* from Rāmnād and Udayagiri respectively.

(5) Numerous species of fish new to the collection among which is a specimen of the fresh-water *Catla buchanani*, obtained in the local market, not previously recorded from south of the river Kistna.

The collection of marine invertebrates has received numerous additions and a considerable number of specimens, chiefly birds, have replaced older and less perfect ones in the galleries. Here as elsewhere in the Museum a great many new labels have been provided during the year.

The series of exhibits illustrating the habits and natural surroundings of South Indian animals, referred to in the last report, has received the following additions:—

(1) A large portion of the vertical bank of a pond, showing in section the nest-burrow of the White-breasted Kingfisher (*Halcyon smyrnensis*), with eggs *in situ* and both sexes of the bird.

(2) Both sexes of the common "Blood-sucker" lizard (*Calotes versicolor*) in their breeding colours, with a burrow containing eggs shown in section.

(3) The common Palm-squirrel (*Funambulus palmarum*) and its nest.

(4) Sections of coral from Kilakarai showing the burrows of two species of *Lithodomus*, with the molluscs *in situ*.

The annexe to the Fish Gallery on the upper floor of the Old Building which is one of the best lighted rooms in the Museum, will in future be reserved for arthropods (insects, etc.). The marine mammals and whale skulls which were formerly exhibited in this room have consequently been removed to a more suitable locality in the central hall, in proximity to the large whale skeleton. The space set free by the removal of the insect cases from their former situation in the room on the ground floor, adjoining the Reptile Gallery, has been converted into an extension of the latter gallery and now contains the lizard collection and a new collection of snakes in spirit formed during the year. The original Reptile Gallery has been reserved for the collections of crocodiles and chelonians.

The more important game trophies have been brought together and labels showing the chief measurements prepared for the use of sportsmen and others interested.

An attempt is being made to represent the natural colours on stuffed specimens of fish in the Fish Gallery. This work is being carried out by the Second Taxidermist who paints the specimens so as to make them resemble as closely as possible examples of the same species living in the Marine Aquarium.

In the vivarium a monitor lizard (*Varanus bengalensis*) laid twelve eggs, six in August and six in November, while a grass snake (*Tropidonotus stolatus*) laid five eggs in August and four in November.

12. MARINE AQUARIUM.—The Aquarium continued to maintain its popularity. The total number of visitors during the year under review and the amount realized in entrance fees, were 110,191 and Rs. 4,113 against 126,843 and Rs. 4,758 in the previous year. The largest number of visitors on any single day was 4,889 on Kannu Pongal (16th January). The total admissions on Wednesdays, when the entrance fee is four annas, and on gosha and ordinary days when the fee is one anna in the forenoon and half an anna in the afternoon, are shown below:—

	Morning.	Afternoon.	Total.
Wednesdays	317	1,125	1,442
Gosha days	130	1,417	1,547
Other days	11,192	96,010	107,202

The general health of the fish was good and there were no serious outbreaks of disease as in some previous years. Among points of interest it may be mentioned that the Murral (*Ophiocephalus striatus*) living in the central fountain bred twice in the course of the year, and a specimen of the Ray, *Trygon kuhlii*, after being two months in captivity, produced two young ones in March.

The reprint of the Guide to the Aquarium, consisting of two thousand copies, which was mentioned in the last report as having been published in May 1912, was exhausted in the year, and a further reprint, also of two thousand copies, was published in January last.

The Aquarium was visited during the year by Their Excellencies the Viceroy and Lady Hardinge and by Their Excellencies Lord Pentland and Lady Pentland.

13. Connemara Public Library.—The total number of readers during the year was 19,474 against 19,207 in 1912-13 :—

Largest number of readers in a day	.. ..	171
Smallest „ „	.. ..	13
Largest „ on Sunday	.. ..	150
Smallest „ „	.. ..	51

The number of standard works added to the library was 509 of which 486 were purchased and the rest presented.

The manuscript of the subject-index of the books in the library was sent to press in June, but owing to delay on the part of the press in putting the matter in print and sending revises, it has not been possible to issue the index in the year under report. At the time of writing the last few pages are about to be struck off.

A statement of the number of books issued to readers during the last two years, under the various subject catalogue heads, is subjoined :—

	1912-13.	1913-14.
Anatomy; biology; natural history; zoology	968	1,015
Anthropology; folklore	472	469
Archæology; architecture	382	394
Arts; industries	1,283	1,069
Atlases; maps	86	74
Belles lettres	5,016	5,207
Botany; arboriculture; horticulture	274	338
Chemistry; agriculture; photography	308	284
Classics	157	263
Dictionaries; encyclopædias; gazetteers; manuals ..	6,845	7,083
Economic products	263	342
Education; ethics; logic	981	976
Exhibitions	27	20
Forestry; timbers	62	71
Geography; physical geography; physiography	119	146
Geology	95	122
History	4,637	4,876
Jurisprudence	369	370
Medicine; surgery; pathology	405	384
Microscopy	16	20
Mineralogy; metallurgy	182	159
Natural philosophy	608	718
Numismatics; medals; heraldry	92	82
Philology; epigraphy	1,308	1,269
Photographs	160	152
Physiology	348	361
Public health	92	84
Religion	1,548	1,607
Sport and games	265	217
Travels; voyages	206	182
Vernacular languages	68	51
Fort St. George Gazette (other than current issues) ..	842	964

14. University Library.—The Syndicate of the Madras University having decided, with the sanction of Government, to erect near the Senate House, a separate building for the library, with which the Oriental Manuscripts library will be amalgamated, the foundation stone was laid by His Excellency the Viceroy during his visit to Madras in November.

The catalogue of books under authors' names was published in March, when the library was opened to the public. Prior to this, the library was, as in previous years, used only by post-graduate students and others engaged in special research.

15. Valuable Stock.—The necessary inventory was maintained and duly checked.

The usual list of donations and statement of expenditure are appended.

APPENDIX A.

Donations, 1913-1914.

Albert Cycle and Trading Company—
Dragon-fly.

Audinarayanaswami Nayudu, Mr. V. K.—
Old bricks from the Clive Battery, Madras, and also bricks manufactured in 1913, for comparison.
Fish (*Gymnothorax favagineus*) from Madras harbour.

Bainbrigge Fletcher, Mr. T., Government Entomologist, Coimbatore—
Young Russell's viper (*Vipera russellii*).
Green tree-snake (*Dryophis mycterizans*).
Young rat-snake (*Zamenis mucosus*).
Common grass-snake (*Tropidonotus stolatus*).
Sand snake (*Eryx johnii*).
Young water-snake (*Helicops schistosus*).
Zamenis fasciolatus.
Simotes arnensis.
Dipsadomorphus trigonata.
Oligodon subgriseus.
All from Coimbatore.

Bhagalpur, Collector—
Two Gupta gold coins of Chandragupta II and Kumaragupta II, found in the Bhagalpur district.

Bombay Natural History Society—
Forty skins and skulls of mammals collected by the Mammal Survey collectors in Bellary, Mysore and Coorg.

Bryant, I.C.S., Mr. J. F.—
Tourmaline quartz rock from Guvvalacheruvu, Cuddapah district.

Central India, First Assistant to the Agent to the Governor-General—
Three gold coins:—Drammas of Mahipala and Sallakshanavarmman and a quarter dramma of Kirttivarmman, found in the Khania dhana State.

Central Provinces, Director of Agriculture—
Twelve silver coins of Ahmad Shah I, Ahmad Shah II, Humayun Shah, Mahmad II, Mahmad Shah II, Katimullah and Waleullah, found in the Tiroda district.
Six coins of Ahmad Shah II, found in the Bhundara district.

Chief Engineer, Public Works Department, Madras—
One hundred and thirty-seven samples of South Indian building stones.

Chowdry, Mr. T.—
Specimens of manganese ore found in the Puri district.

Cohen, Mr. H. R.—
Mantis.

Corporation of Madras—
Fallow deer (*Dama vulgaris*).
Llama [*Lama* (*Auchenia*) *glama*].
Spotted deer (*Axis axis*).
Lion-tailed monkey (*Macacus silenus*).
Orang-utan (*Pongo pygmæus*).
Kangaroo (*Macropus giganteus*).
Emu's eggs (*Dromæus sp.*).
Golden Pheasant (*Chrysolophus pictus*).
Rock snake (*Python molurus*).
Monal Pheasant (*Lophophorus refulgens*).
All from the Menagerie, People's Park.

Fraser, I.M.S., Captain, F. C.—
Beetles from Madras, Trichinopoly, Coonoor, Periyakulam, Kodaikanal and Bangalore.

Greenall, Mr. R.—
Large water-bugs (*Belostoma indicum*), Madras.

Hatchell, Mr. D. S.—
Common yellow bat (*Scotophilus kuhlii*), Madanapalle.

Hearsey, Mr. T. N.—
Living Jungle-fowl (*Gallus sonnerati*).
Living Painted Spur-fowl (*Galloperdix lunulata*).

Henderson, Mrs. A. R.—
Snake (*Lachesis strigatus*), Avalanche, Nilgiris.

Houghton, Mr. H. E.—
Sensitive plant (*Mimosa pudica*).
Cacao fruit (*Theobroma cacao*).

Jāth, State Kharbari—
Gold coin of Vijayanagara (half-pagoda of Achyutarāya) found in Jāth.

Johnston, Mr. W. H.—
Earwig (*Labia sp.*) Madras.

Kemp, Mr. Stanley, Indian Museum, Calcutta—
Butterflies (*Kallima inachus*).
Indian scorpions.
Indian Crustacea, including a collection of South Indian Stomatopoda.

Laville, Mr. B.—
Tassa silk-moth (*Antheræa paphia*), Madras.

Monghyr, Collector—
Billon coin of Govinda Chandra, found in Karangarh, Monghyr district.

Narayana Rao, M.A., L.T., Mr. C. R.—
Frogs—
Rana curtipes from Coorg.
Rana leptodactyla from Coorg.
Microhyla ornata from Bangalore.

Peters, Mr. G. L.—
An exceptionally large specimen of the Krait (*Bungarus cæruleus*) from Arkonam, measuring 4½ feet in length.

Ranganatha Rao, Mr. T. V.—
Silkworm cocoons (*Antheræa paphia*), Madras.

Royal Asiatic Society, Bombay Branch—

I. (*a*) Gold coins of Ottoman Sultans—
Suleyman-bin-Selim, Misar (Cairo) mint, A.H. 926, and Constantinople mint, A.H. 926;
Sultan Murad III Bin-Selim, Misar mint A.H. 982, and Misar mint, A.H. 1003;
Sultan Ahmed-bin-Muhammad. Misar mint, A.H. 1012, and Constantinople mint, no year.
(*b*) Venetian sequin. Pasquale Cicogna.
Found at Dapoli, Ratnagiri district.

II. (*a*) Rupee of Aurangzib. Barcli mint, A.H. 1108, regnal year 40.
(*b*) Five silver larins (straight variety).
Found at Sangameshwar, Ahmednagar district.

III. (*a*) Double rupee of Tipu Sultān. Patan mint, A.H. 1200.
(*b*) Rupee of Tipu Sultān. Patan mint, A.M. 1216.
(*c*) Rupee of the French East India Company, Arkat mint, A.H. 1200.
Found at Khaloo, Satara district.

IV. Vijayanagara coins—
Pagoda of Deva Rāya; pagoda of Sadāsiva Rāya; half pagoda of Achyuta Rāya.
Found in the Southern Mahratta country.

V. Coins of Gujaratha Sultanate—
Three silver coins of Mahammad Shah I; five silver coins of Muzaffer Shah II.
Found at Halol, Punch Mahals district.

VI. (*a*) Gold coin (pagoda) of Deva Rāya.
(*b*) Rupee of Jehangir.
(*c*) Ten rupees of Akbar.
Found at Vakod, East Khandesh.

Sherriffs, M.A., B.SC., Mr. W. R.—
Black scorpion [*Heterometrus* (*Palamnæus*) *swammerdami*], Madras.

Silver, B.D., A.—
Male Red-crested Pochard (*Netta rufina*) Arkonam.

Srinivasachari, Mr. K.—
Bat (*Taphozous saccolæmus*) Madras

Stoney, Mr. R. F.—
Pintail-snipe (*Gallinago stenura*), Chingleput district.

Superintendent, Archæological Survey, S.C., Madras—
Two inscribed stone slabs from Dharānikōta, Guntūr district.

Superintendent, Archæological Survey, W.C., Poona—
Copper coin of Mahmud Shah II, Khalji of Malwa, found in the Chhabra Pargana, Tonk State, Rajputana.

Symonds, Mr A. P.—
A collection of sub-fossil shells and a prepared section showing the strata exposed by excavation at the Buckingham Mill, Perambore.

Tracy, D.D. ,Rev. J. E.—
Wasp's nest from Perumāl, Palni Hills.
Clay seals.

United Provinces Government—
Two silver coins of Ala-ud-din, Muhammad Shah II, found in the Benares district.
Moghul rupee of Shah Jehan, found in the Naini Tal district.
Rupee of Shah Jehan (Multan), found in the Allahabad district.
Two rupees of Muhammad Shah, found in the Etah district.
Three rupees of Aurangzib and Farrukhsiyar, found in the Budaun district.
Sixty-three rupees of Aurangzib, Farrukhsiyar, Shah Alam I, Jahandar Shah, Shah Jahan and Muhammad Shah, found in the Basti district.
Thirty-eight silver coins of Sher Shah, Islam Shah, Akbar, Muhammad Adil, Daud Shah Kararani, Ghiyas-ud-din Bahadur Shah and Jalal Shah, found in the Mirzapur district.
Six silver coins of Muhammad Shah, found in the Mooradabad district.
Fourteen billon coins of Husain Shah of Jaunpur, found in the Sultanpur district.
Gold mohur of Firoz Shah III and sixteen billon coins, found in the Jalaun district.
Fifteen rupees of Aurangzib, found in the Sitapur district.
Rupee of Jehangir, three rupees of Shah Jahan and twenty-five rupees of Aurangzib, found in the Rae Bareli district.
Two billon coins (Tughlaq) found in the Rae Bareli district.
Four rupees and four billon coins found in the Sultanpur district.
East India Company Benares rupee, found in the Hardoi district.
Four rupees of Akbar, found in the Azangarh district.
Rupee of Muhammad Shah and four rupees of Shah Alam II, found in the Aligarh district.
Two rupees of Jehangir, found in the Agra district.
Four rupees of Aurangzib, a rupee of Farrukhsiyar and a rupee of Muhammad Shah, found in the Jhansi district.
Rupee of Akbar, found in the Fateh pur disrict.
Twenty-four coins of Muhammad II, Mubarak I Tughlaq, and Muhammad-bin-Tughlaq found in the Shahjahanpur district.
Three copper coins of Ala-ud-din Muhammad Shah II, Qutb-ud-din Mubarak and a Tughlaq coin found in the Kheri district.
Four copper coins of Akbar, found in the Farrukhabad district.
Two rupees of Shah Alam, found in the Rae Bareli district.
Three silver coins of Ala-ud-din Muhammad Shah II, found in the Farrukhabad district.
Seven silver coins of Aurangzib, found in the Bara Banki district.
Three silver coins of Jalal-ud-din Firoz II, found in the Etah district.
Nineteen billon coins, found in the Rae Bareli district.
Fifteen Moghul rupees of Muhammad Shah, Ahmad Shah, Alamgir II and Shah Jahan III found in the Meerut district.
Fourteen silver coins of Shah Alam II found in the Allahabad district.
Two copper Tughlaq coins (Firoz III) found in the Etah district.

Walker, Mr. G. K.—
Wood sand-piper (*Totanus glareola*).
Spotted crake (*Porzana marnetta*).
Wing of the Southern green pigeon (*Crocopus chlorogaster*).
All from the Chingleput district.

APPENDIX B.

Classified List of Expenditure of the Government Museum, Connemara Public Library, and the Marine Aquarium during the year 1913-1914.

GOVERNMENT MUSEUM AND CONNEMARA PUBLIC LIBRARY.

	Actuals, 1913-1914.	Revised estimate, 1913-1914.
	RS.	RS.
Salaries—		
Superintendent	8,350	8,350
Local allowance	420	420
Total	8,770	8,770
Permanent establishment, Government Museum—		
Zoological assistant, herbarium-keeper, first assistant, second assistant, writer, assistant writer, senior and second taxidermists and 28 peons—36 persons	7,989	8,016
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons	2,451	2,400
Total, Establishment	10,440	10,416
Allowances—		
Travelling allowance	1,158	700
Grain compensation allowance	705	770
Total, Allowances	1,863	1,470
Supplies and Services—		
Cost of specimens purchased on tour	408	
Objects of interest and coins purchased at head-quarters	965	
Fittings, furniture, etc., for the collection	3,387	
Cost of books and publications	898	
Library	2,791	
Lithographic plates	10	7,450
Ammunition	204	
Charges for feeding live animals	212	
Expenses—reading coins	..	
Cost of indented Europe stores	463	
Cost of locally-purchased stores	132	
Freight on Europe stores	23	
Petty construction and repairs	37	
Total, Supplies and Services	9,530	7,450
Contingencies—		
Purchase and repair of furniture	294	
Tour charges	62	
Cleaning charges	419	
Postage and telegraph charges	126	
Telephone charges	75	9,057
Rents, rates and taxes	4,473	
Office expenses	1,347	
Electric lights and fans	98	
Pay of menials	911	
Miscellaneous	118	
Total, Contingencies	7,923	9,057

Marine Aquarium.

	Actuals, 1913-1914.	Revised estimate, 1913-1914.
	Rs.	Rs.
Permanent establishment, Marine Aquarium—		
Head-keeper, second keeper, third keeper and two door-keepers—5 persons	791	786
Famine batta	107	108
Total, Establishment ..	898	894
Supplies and Services—		
Food for animals	926	
Fittings, etc., for the collection	407	
Cost of locally-purchased stores	8	1,306
Cost of indented Europe stores	..	
Freight on Europe stores	..	
Total, Supplies and Services ..	1,341	1,306
Contingencies—		
Rents, rates and taxes	196	
Postage and telegraph charges	..	
Office expenses	175	
Purchase and repair of furniture	..	1,984
Miscellaneous	14	
Pay of menials	1,523	
Cleaning charges	..	
Tour charges	30	
Total, Contingencies ..	1,938	1,984
Total, Marine Aquarium ..	4,177	4,184
Grand Total ..	42,703	41,347

Order—No. 846, Educational, dated 18th July 1914.

Recorded.

2. The thanks of Government are due to the persons who made donations to the Museum during the year.

3. The Government hope that it will be found possible to continue the demonstrations and lectures referred to in paragraph 4 of the report and to give the latter at an hour more convenient to the general public.

(True Extract.)

W. Francis,
Ag. Secretary to Government.

To the Superintendent, Government Museum.
" Director of Public Instruction.
" Public Department
" Revenue Department
" Accountant-General.
" Director-General of Archæology (with C.L.).
" Public Works Department (with reference to paragraph 2 of the report).

Editors' Table.

Government of Madras

HOME DEPARTMENT (EDUCATION)

G.O. No. 968, 24th July 1917.

Government Museum

Recording, with remarks, the report on the working of the —, the Marine Aquarium and the Connemara Public Library for the year 1916–17.

READ—the following paper :—

Letter—from J. R. HENDERSON, Esq., M.B., C.M., F.L.S., Superintendent, Government Museum.
To—the Secretary to Government, Home (Education) Department.
Dated—Madras, the 7th July 1917.
No.—346.

I have the honour to forward, for submission to His Excellency the Governor in Council, the report on the working of the Government Museum, the Marine Aquarium and the Connemara Public Library during the year 1916–17 and to request that I may be supplied with 135 copies for distribution to other museums, etc.

ENCLOSURE

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM, THE MARINE AQUARIUM AND THE CONNEMARA PUBLIC LIBRARY FOR 1916–17

I was on privilege leave for three months from 5th June when Mr. H. Dodwell acted for me without prejudice to his duties as Curator, Madras Record Office. My thanks are due to him for the efficient manner in which he carried on the work during my absence.

2. VISITORS.—The numbers of visitors to the Museum during the year under review, as compared with the preceding year, were as follows :—

	1915 16.	1916–17.
Total number of visitors to the Old Building	410,080	392,627
Total number of visitors to the New Building	394,351	361,689
Largest number of visitors on a single day to the Old Building	51,728	51,572
Largest number of visitors on a single day to the New Building	72,145	54,587
Total number of visitors on Sundays to the Old Building	119,488	66,250
Total number of visitors on Sundays to the New Building	136,477	57,816
Total number of gosha female visitors (on the first Saturday in each month)	11,526	12,216

As usual Kannu Pongal (16th January) was the day on which the Museum was attended by the largest number of visitors. The apparent fall in the number of visitors on Sundays is accounted for by the fact that in 1916 Kannu Pongal fell on a Sunday.

Excluding the special festival days of Dwādasi and Kannu Pongal, the number of visitors (average of the two buildings) in the year under review was 290,813 against 306,116 in the preceding year and 306,747, the average of the five years ending with the preceding year.

3. Buildings.—The detailed plans and estimates for the proposed extension on the south side of the New Building have been approved and at the time of writing this report the work of construction is in progress. While this additional space will do much to relieve the congestion of exhibits which was referred to in the last Annual Report, the difficulty of finding room for recent accessions is increasing in other sections of the Museum and more particularly in the zoological section.

The Theatre was used on nineteen occasions, eleven of these being performances of the Madras Amateur Dramatic Society and three concerts of the Madras Musical Association.

4. Establishment.—The Zoological Assistant's post having fallen vacant owing to the resignation of M.R.Ry. D. W. Devanesan, M.A., M.R.Ry. H. Chennappaiya, M.A. (Zoology), L.T., was appointed on probation for one year.

I regret to record the premature death in October of the third clerk R. Ramamurti Sastri, after a service of about four years.

I am pleased to record that the entire staff worked well during the year.

5. Museum Demonstrations.—The demonstrations to pupils of the higher classes of high schools in Madras City were continued from November to March. Three batches of twenty-five pupils each were conducted by the three Museum Assistants over special sections of the Museum on Monday and Tuesday afternoons. The total number of pupils who attended the demonstrations was 2,355.

As in previous years a series of demonstrations conducted by myself was given to teachers in Madras Schools, on Saturday forenoons from January to March. Ten demonstrations were held at which 210 teachers were present.

An electric lantern with the necessary accessories was received towards the end of the year, and with its aid it is hoped to develop a scheme for the delivery of popular lectures at the Museum. A considerable number of lantern slides, illustrating Museum exhibits, has already been prepared.

6. History.—Several cannon received from the Arsenal, Fort St. George, in 1897, were provided with labels during the year. Among these are four old European cannon taken at Mandalay in the third Burmese war of 1885, two of which bear the arms of the House of Orange and one of the latter the date 1602. As three of the cannon bore Burmese inscriptions estampages were sent to Mr. C. Duroiselle, Assistant Archæological Superintendent for Epigraphy, Burma, and I am indebted to that gentleman for translations which reveal information of some interest. They record the fact that the cannon were captured at Dwārawati, a former capital of Siam, by Sinbyuyin, King of Burma, who subjugated Siam in 1767 A.D. In the course of the investigation it was discovered that some of the inscriptions are in old Siamese characters, and as estampages have been sent to Bangkok it is hoped that their decipherment may carry the history of these much travelled weapons still further back. Two cannon which were probably brought to Madras as trophies after the first China war of 1842, are furnished with Chinese inscriptions, for a translation of which I am indebted to Mr. Taw Sein Ko, I.S.O., C.I.E., Superintendent, Archæological Survey, Burma The inscriptions state that the cannon were made by Yen, Viceroy of the Min-Che Provinces, and Liu, Governor of Fuchien, and were placed at Amoy in the fifth month of the twenty-first regnal year of the Chinese Emperor Tao Kuang (corresponding to June 1841).

7. Archæology and Art.—Selections of duplicate specimens of the prehistoric antiquities excavated by Mr. Rea at Ādichanallūr, Tinnevelly district, and Perumbāir, Chingleput district, were sent to the British Museum, London, and the State Museum, Pudukkottai. A few duplicate South Indian stone implements were sent to Professor L. White King, C.S.I., for the Dublin University Museum.

At the request of the Director-General of Archæology in India, the Bhattiprōlu relic which was ordered to be delivered to him, for restoration to the Buddhist community, in G.O. Mis. No. 472, Educational, dated 1st May 1916, is retained in the Museum till the question of its disposal has been finally settled. This fragment of bone, one of the few remaining relics of the Buddha, was discovered by Mr. Rea during his excavations at the Bhattiprōlu stupa, in the Kistna district, and forwarded to the Museum in 1892.

BOMBAY BRANCH
OF THE
Royal Asiatic Society.

A catalogue of the extensive series of copper-plate inscriptions in this Museum is almost ready for the press.

Mr. G. Yazdani, M.A., Superintendent of Archæology, His Highness the Nizam's Dominions, spent some time during November in studying the "ownership" marks on prehistoric pottery in the Museum collections.

The metal-ware collection was augmented by numerous purchases during the year, among which may be mentioned koftgari and steel articles from Trivandrum and Sivaganga respectively, purchased at the loan Exhibition of objects of Indian Art, held at Madras in February last.

Among the noteworthy additions to this section are the following:—

(1) An inscribed memorial stone commemorating the greatness of Viddērāsi (Vidyārāsi), a Pasupata or Saivite teacher who lived at Tagadūr, an old name for Dharmapuri, Salem district, obtained by the Archæological Assistant during a tour in the district. It contains two figures of the teacher placed on either side of a linga, one in the attitude of worshipping Siva and the other practising Siva yōga. The inscription, which is in old Kanarese and undated, gives a description of the ancient town of Tagadūr and extols the virtues of the teacher. This valuable acquisition to the Museum may on palæographical grounds be ascribed to the eighth century, A.D.

(2) Stone figures of a Nāginī, Sūrya, a Saivite saint, and a mukhalinga from a ruined Saivite temple at Jōtī, Cuddapah district, sent at the instance of the Superintendent, Archæological Survey, Southern Circle.

(3) A stone figure of Krishna from the Krishna temple at Vijayanagara, Bellary district, sent by the Superintendent, Archæological Survey, Southern Circle. An inscription in the temple states that it was built by Krishna Lēva Rāya in 1513 A.D., for an image of Krishna which he removed from a temple in the hill fortress at Udayagiri, Nellore district, on his expedition against Orissa. The figure which is about two feet in height is carved out of a block of dark green chlorite, and Mr. Longhurst who believes that it is the one taken from Udayagiri, writes—"as a rule all the images at Hampi are hopelessly mutilated, probably by the Muhammadans after the battle of Tālikotā. The darkness of the sanctum alone, has saved this historic image from utter destruction."

(4) A nāgakkal (snake-stone) from Puttūr village and a veerakkal (hero-stone) from Adamānkottai, near Dharmapuri, obtained by the Archæological Assistant during a tour in the Salem district.

(5) An erect marble figure of Buddha, unfortunately headless, from a ruined stupa at Vidyādharapuram, near Bezwada.

(6) Copper images of Natēsa, Sivakāmisundarī, Somāskanda, Pārvatī, Chandrasēkhara and his wife, Mōhinī, and Chandikēsvara, from Bēlūr, Salem district, acquired under the Treasure Trove Act. They are of considerable artistic merit. The pedestal of Natēsa, which appears to have been made later than the image, bears an inscription in Tamil, "a gift by several (persons) to the God of Tandōni in the Kali year 4611," a date corresponding to 1510 A.D. This is the first example of a copper or bronze image carrying a date which has reached the Museum.

(7) Copper images of Varadarāja (Vishnu) and his two wives found in the village of Perunthōttam, Tanjore district, and acquired under the Treasure Trove Act.

(8) Copper images of Kāmākshi, Durgā, Pārvatī, Bhairava, Ganēsa, and Mānikkavāsagar, for use in household worship, found in the Tanjore district and acquired under the Treasure Trove Act.

(9) A set of five copper plates strung on a ring, with a massive seal bearing in relief the Chālukyan boar and the legend "Sri-Tribhuvanānkusa," from the Collector's office, Masulipatam, and received from the Assistant Archæological Superintendent for Epigraphy, Southern Circle. The plates record the grant by Chālukya-Bhīma I, who ruled from 888 to 918 A.D., of the village of Vedatalūru to forty-six Brahmans, on the occasion of the nityasrāddha of his son who was killed in battle at the age of sixteen.

(10) A set of five copper plates strung on a ring with a worn seal, dug up in the village of Peravali, Guntūr district, received from the Collector through the

Assistant Archæological Superintendent for Epigraphy. The plates record a grant by the eastern Chālukyan King Vishnuvardhana V, *alias* Vishamasiddhi, who ascended the throne in 843 A.D., of the village of Randuballi to a Brahman on the occasion of a solar eclipse.

(11) A set of three copper plates found at the village of Peravali and received from the Collector of Guntūr through the Assistant Archæological Superintendent for Epigraphy. The plates which are undated record the grant by the Eastern Chālukyan King Vishnuvardhana III, of the village of Māvinthipalli to a Brahman. Records of this king who reigned from 709 to 746 A.D. are extremely rare.

(12) A number of prehistoric cornelian beads found in the Pālghāt taluk and forwarded by the Sub-Collector, and a set of prehistoric quartz and chalcedony beads found in Travancore and presented by Mr. E. Masillamani.

The Archæological Assistant toured in the Salem, Coimbatore and Kistna districts.

8. Numismatics.—Under orders contained in Government Memorandum No. 4399/15-4, Public, dated 21st June 1916, the Archæological Assistant was deputed to assist the Assistant Archæological Superintendent for Epigraphy, Southern Circle, in the examination of the large find, numbering over 16,000, of gold coins concerned in the Kōdūr Treasure Trove case which is referred to in the last Annual Report. The majority of these coins are attributed by Mr. Krishna Sastri to the Telugu-Chola chiefs who ruled during the thirteenth century in the modern Nellore and Cuddapah districts. His report on the find was forwarded to me and I have submitted suggestions for the distribution of the coins.

The following coins were acquired under the provisions of the Indian Treasure Trove Act :—

(1) A very important find of eleven Roman gold coins, discovered by Mr. J. Craig Harvey in the course of excavations in the compound of the Madura Mills at the town of Madura. These aurei of which there are nine varieties, all new to the Museum collection, were struck by the Roman emperors Claudius I, who reigned from 41 to 54 A.D., Nero from 54 to 68 A.D., and Domitian from 81 to 96 A.D.; they include a rare aureus of Antonia the mother of Claudius, struck during the reign of her son, and another commemorating Claudius and his wife Agrippina. Seven of the coins have been defaced by a slight cut across the emperor's head, but they are otherwise in fine condition. The following are descriptions of the coins :—

(i) *Obv.* Laureate head of Antonia to right. ANTONIA AVGVSTA.
Rev. Standing female figure, emblematic of Constancy, with a staff in the right hand and a cornucopia in the left hand. CONSTANTIAE AVGVSTI.

(ii) *Obv.* Laureate head of Claudius to right. TI. CLAVD. CAESAR AVG. GERM. P.M. TRIB. POT. P.P.
Rev. Wreathed head of Agrippina to right. AGRIPPINAE AVGVSTAE.

(iii) *Obv.* Laureate head of Claudius to right. TI. CLAVD. CAESAR AVG. GERM. P.M. TR. P.
Rev. Seated female figure (Constancy ?). CONSTANTIAE AVGVSTI.

(iv) *Obv.* Laureate head of Claudius to right. TI. CLAVD. CAESAR. AVG. P.M. TR. P. VI. IMP. XI.
Rev. S.P.Q.R. P.P. O.B. C.S., all within a wreath.

(v) *Obv.* Laureate head of Claudius to right. TI. CLAVD. CAESAR. AVG. P.M. TR. P.X. IMP. P.P.
Rev. Winged Victory pointing with caduceus to a serpent. PACI AVGVSTAE.

(vi) *Obv.* Head of Nero to right. NERO CAESAR AVG. IMP.
Rev. EX. S.C. within a wreath. PONTIF. MAX. TR. P. II. P.P. in the margin.

(vii) *Obv.* Head of Nero to right. NERO CAESAR AVG. IMP.
Rev. Helmeted warrior to right, holding a globe (?). PONTIF. MAX. TR. P. VIII. COS. IIII. P.P. In the field EX. S.C.

(viii) *Obv.* Head of Nero to right. NERO CAESAR AVG. IMP.
Rev. Helmeted warrior to left. PONTIF. MAX. TR. P. VIII. COS. IIII. P.P. In the field EX. S.C.

(ix) *Obv.* Laureate head of Domitian to right. IMP. CAES. DOMITIANVS AVG. P.M.
Rev. Helmeted head (Minerva ?) to left. TR. POT. IMP. II. COS. VIII. DES. IX. P.P.

(2) A gold pagoda of Haidar Alī, found in the village of Ganapathipālayam, Coimbatore district.

(3) Fourteen French Arcot rupees, struck at Pondicherry, and three rupees of Tipu Sultan, struck at Seringapatam, found in the village of Pottireddipatti, Trichinopoly district.

(4) Twenty-six Moghul rupees, struck for Southern India at the Imtiyāzgarh (Adōni) and other mints, found in the village of Nagatūr, Kurnool district.

(5) Thirteen Bahaduri fanams of Haidar Alī, three Ikkēri fanams and fourteen fanams of similar type, found in the village of Bommarbettu, South Kanara district.

Specimens of the coins from Pottireddipatti, Nagatūr and Bommarbettu have been distributed to the Indian Museum, Calcutta, and other institutions in accordance with the rules to regulate proceedings under the Indian Treasure Trove Act (appended to G.O. No. 604, Public, dated 26th July 1907).

The Museum is indebted to Mr. P. E. Pieris, C.C.S., District Judge, Jaffna, for copies of the rare copper massas of Chōdaganga Deva and Nissanka Malla of Ceylon.

To the Governments of the United Provinces, the Central Provinces, and Bengal, to the Bombay Branch of the Royal Asiatic Society, and to the Darbar of Gwalior, the Museum is indebted for coins presented to it in the course of the year.

9. Textiles.—The exhibits in the Fabric Room have been completely rearranged in the course of the year. By adopting, in place of the old table-cases, a series of new flat erect cases, on both sides of which the exhibits are arranged under glass, it has been found possible both to economize space and to show the objects to better advantage. Space has now been found for the palampores which were formerly displayed on the walls of the Art Gallery, but had to be removed as they were deteriorating in consequence of exposure, and for a number of other fabrics stored away for lack of room. All the exhibits are being provided with descriptive labels.

A series of specimens illustrating the manufacture of a block-printed palampore, together with the materials at present used in block-printing at Masulipatam, was added to the collection. The method followed in this locality is briefly as follows :—

The cloth is first mordanted in a solution of myrobalans and milk. The required designs are then printed on the cloth by means of wood-blocks dipped in a paste of either Indian gum-arabic and iron dissolved in jaggery water, which gives a deep black print, or gum-arabic and alum in ordinary water, giving a lighter print. The cloth is next washed and immersed in a solution of chay-root (*Oldenlandia umbellata*) and twigs of *Woodfordia floribunda*, as a result of which a slight red colour is imparted to the fabric. Then certain parts are coloured blue by the wax method. All the parts not intended to be blue are covered with melted wax by means of a special pen or brush and the cloth is immersed in a solution of indigo. As a result the parts not covered by the wax are dyed blue while the rest is unaffected. The wax is afterwards removed by plunging the fabric in hot water. The green and yellow portions of the design are now added by hand-painting and a solution of certain galls from the leaves of the myrobalan tree (*Terminalia chebula*) is used for the purpose. Finally the cloth is washed in a solution of alum.

10. Ethnology.—The collection of miscellaneous ethnographic objects, including votive offerings, etc., was rearranged and furnished with descriptive labels.

Among the additions made to this section were the following :—

(1) Models of huts, weapons, domestic utensils, etc., together with photographs of the Mala Arayans and Mannans, hill tribes of Travancore, obtained from Travancore.

(2) A model of a hut, wearing apparel, implements, etc., of the Chenchus, from Kondapalli, Kistna district.

(3) Metal yantras with cabalistic figures used by Māppillas in sorcery, from Malabar.

(4) Slings made of vegetable fibre, used by boys watching fields in the Gōdāvari Agency Tracts.

(5) Fire-making sticks made of the wood of *Cordia myxa*, used by Yānādis, from Nellore.

11. Economic and Botanical.—Two tours were made by the Herbarium Keeper, one to Travancore in October and the other to the Kistna district in March. They resulted in numerous additions to the economic and botanical sections, and a number of new photographs were added to the series illustrating growing plants and the methods of manufacture adopted in the case of various economic products.

Among the additions made to this section were the following :—

(1) From Travancore, exhibits connected with the manufacture of stearine from the seeds of the piney varnish tree (*Vateria indica*); the fibrous bark of *Acacia intsia* used as a soap-substitute, and the fibres of the bamboo *Ochlandra travancorica* used for paper-making and of *Spatholobus roxburghii* used for ropes and bowstrings; the resin of *Ailanthus malabarica* used as incense and of black dammar (*Canarium strictum*) used as a medicine and varnish.

(2) From the Kistna district sunn-hemp fibre, and rope, gunny-bag and canvas made from the same; a brush made from the leaves of the wild date palm (*Phoenix sylvestris*); samples of the wood of *Gyrocarpus jacquini* used in the manufacture of Kondapalli toys and of *Givotia rottleriformis* used by the Madras Pencil Factory for the cheaper kind of pencils; a receptacle or basket for a kavadi vessel made of the twigs of a *Jasminum*; and a toy-model made at Kondapalli showing the local method of hulling rice.

(3) To the Director of Industries, Madras, the Museum is indebted for a series of specimens illustrating the manufacture of pencils from the wood of pencil cedar (*Juniperus procera*) from East Africa. One set represents the stages from the crude graphite to the finished pencil lead, while another shows the stages from the slat to the "Star of India" pencil. Slats and pencils made of South Indian woods (*Givotia rottleriformis* and *Gmelina arborea*) were also included in the selection.

(4) A series of silk moths (*Bombyx mori*), eggs, cocoons, and samples of silk and silk cloth, presented by the Manager of the Salvation Army Tata Silk Farm, Bangalore.

(5) A model of a country hand-loom with a piece of cloth woven on it, made at Triplicane, Madras.

In the Botany Gallery the work of remounting the old herbarium specimens was completed during the year and new ones have also been added. Among the additions to this gallery may be noted a specimen of rattan cane (*Calamus rotang*) nearly forty feet in length, and an abnormal cocoanut inflorescence showing viviparous growth, both from Travancore, and polished specimens of fossil wood from Tiruvakkarai, South Arcot district.

A catalogue of the extensive collection of timber specimens, with brief notes on the distribution and uses of the different woods, was published during the year.

12. Geology and Mineralogy.—Among the more important additions to this section are the following :—

(1) Graphite crystals, phlogopite mica, mica monazite pegmatite, fine monazite from mica monazite pegmatite, coarse monazite, pyrrhotite, zircon and garnet, all from Travancore, presented by Mr. E. Masillamani.

(2) Molybdenite in quartz, aplite stained with molybdenite ochre, and allanite, presented by Mr. R. H. A. Johnston, Madras Survey, Trichinopoly.

(3) Concretionary sandstone with ferruginous bands of limonite and haematite, also sandstone showing cavities formed by pebbles, etc., kept rotating by eddies of running water, from Tiruvakkarai, South Arcot.

An index collection of South Indian rocks was added to the Mineral Gallery during the year.

13. Natural History.—Owing to the increasing difficulties in regard to space there were fewer additions to this section than in former years, and it was not found possible to add to the popular series of exhibits showing animals in their natural surroundings. A large number of new labels were prepared during the year and practically all the exhibits in the Fish and Reptile Galleries were relabelled. Two tours were made, one by the Second Taxidermist to the Kistna district in December, and a short one by the Zoological Assistant to Chingleput in March. Among the more important additions the following may be noted:—

(1) The following mammals new to the collection:—Both sexes of the langūr or Hanūmān monkey (*Presbytis entellus*), and the Bengal monkey (*Macaca rhesus*), both from the Kistna district.

(2) The following birds new to the collection:—The Yellow-headed Wagtail (*Motacilla citreola*), the Blue-headed Wagtail (*Motacilla flava*) and the large Egret (*Herodias alba*), all from the Kistna district, and Richard's Pipit (*Anthus richardi*) from Chingleput.

(3) Several reptiles new to the collection among which may be mentioned:—A carapace of the large fresh-water turtle (*Chitra indica*), from the Tanjore district, forming the first record of this species for the Madras Presidency; a lizard (*Lygosoma travancoricum*) from the Palni Hills; and specimens of the pond tortoises, *Emyda granosa*, var. *intermedia*, from the Gōdāvari river and *Geoemyda trijuga*, var. *plumbea*, from Coorg. Eggs of pond tortoises (*Emyda granosa*, var. *vittata*, and *Geoemyda trijuga*) were also added to the collection.

A preparation of the sternal regions of the frog (*Rana*) and the toad (*Bufo*), to show the firmisternal and arciferous conditions, has been exhibited for the use of students.

The Museum is indebted to Mr. F. Hannyngton, I.C.S., Commissioner of Coorg, for a selection of butterflies from Coorg, which included a number of species new to the collection.

In the Vivarium a large black scorpion (*Palamnaeus swammerdami*) gave birth to twelve young ones in June, and as in the case of the smaller scorpions carried them onher back. A snake (*Tropidonotus stolatus*) laid two eggs in July.

14. Marine Aquarium.—The total number of visitors during the year under review and the amount realized in entrance fees were 106,641 and Rs. 3,795 against 105,670 and Rs. 3,769 in the previous year. The largest number of visitors on any single day was 4,182 on Kannu Pongal (16th January).

Details for the admissions are given below, the ordinary entrance fee being one anna in the forenoon and half an anna in the afternoon:—

	Morning.	Afternoon.	Total.
Gosha days (last Monday of each month)	175	1,472	1,647
Other days	12,366	92,339	104,705
Students admitted at the concession rate of half an anna each in the morning...	47	...	47
Visitors specially admitted at four annas each (when the Aquarium was closed to the public)	130	89	219
Zenana visitors admitted at one rupee each under special arrangements (when the Aquarium was closed to the public).	23	...	23
			106,641

The general health of the fish continued to be good throughout the year.

The Aquarium building was constructed on a low level so that it might not form too conspicuous an object on the foreshore of the Marina. As a result of this considerable inconvenience is experienced in wet weather by rain water flowing in from the outside and also rising through the floor. On the day after the heavy storm of the 22nd November last, water lay to the depth of nine inches in the main hall.

15. Connemara Public Library.—The total number of readers during the year was 22,776 against 20,581 in 1915–16 :—

Largest number of readers in a day	233
Smallest number of readers in a day	22
Largest number of readers on a Sunday	186
Smallest number of readers on a Sunday	32

The total number of readers is the highest ever reached in a single year since the Library was opened to the public.

The number of standard works added to the library was 136, of which 101 were purchased and the rest presented. The decrease in the number of books purchased, as compared with preceding years, is due to the fact that a large consignment which was due in the latter part of the year was lost at sea, and although the order was repeated it was not possible to receive the second consignment before the close of the year.

A statement of the number of books issued to readers during the last two years arranged under subjects is subjoined :—

	1915–16.	1916–17.
Anatomy ; biology ; natural history ; zoology	1,275	1,686
Anthropology ; folklore	407	468
Archæology ; architecture	426	495
Arts ; industries	1,142	1,484
Atlases ; maps	96	106
Belles lettres	5,622	7,749
Botany ; arboriculture ; horticulture	432	567
Chemistry ; agriculture ; photography	327	438
Classics	204	417
Dictionaries ; encyclopædias ; gazetteers ; manuals	7,429	8,062
Economic products	408	513
Education ; ethics ; logic	1,236	1,844
Exhibitions	32	68
Forestry ; timbers	119	140
Geography ; physical geography ; physiography	185	203
Geology	139	168
History	5,672	6,787
Jurisprudence	436	503
Medicine ; surgery ; pathology	419	465
Microscopy	12	19
Mineralogy ; metallurgy	208	239
Natural philosophy	816	848
Numismatics ; medals ; heraldry	104	122
Philology ; epigraphy	1,492	1,865
Photographs	225	247
Physiology	327	365
Public health	62	72
Religion	1,976	2,068
Sport and games	252	312
Travels ; voyages	235	265
Vernacular languages	73	108
Fort St. George Gazette (other than current issues) ...	1,274	1,365

16. University Library.—The total number of readers during the year was 8,402 as against 6,456 in 1915–16, and 11,213 volumes were consulted as against 9,076 in the previous year.

The privilege of taking books on loan from the Library against a deposit of Rs. 20 was claimed by 133 University readers as against 91 in 1915–16, and 3,778 volumes were consulted in this way as against 2,699 in the previous year.

A Supplementary Catalogue of Books under Authors' Names, brought up to the end of 1916, was published at the end of the year.

17. Valuable Stock.—The necessary inventory was maintained and duly checked.

The usual list of donations and statement of expenditure are appended.

APPENDIX A

Donations, 1916-17.

Assistant Archæological Superintendent for Epigraphy, Southern Circle—
A set of five copper plates belonging to the reign of the Eastern Chālukyan King Chālukya-Bhima I, from Kistna district.
A set of five copper plates belonging to the reign of the Eastern Chālukyan King Vishnuvardhana V (Vishamasiddhi), from Guntūr district.
A set of three copper plates belonging to the reign of the Eastern Chālukyan King Vishnuvardhana III, from Guntūr district.

Assistant Superintendent, Archæological Survey, Indian Museum, Calcutta—
Twenty-eight copper coins of the later Chahamana Princes of Narwar, found in the territory of His Highness the Maharaja Sindhia of Gwalior.

Bengal Government—
Twelve Bengal silver coins of Shams-ud-dīn Illias, Sikandar-bin-Illias and Ghias-ud-dīn Azam, found in the Khulnā district.
Rupees of Muhammad Shāh and Alamgīr II, found in the Khulnā district.

Bobbili, The Maharaja of, G.C.I.E.—
Pheasant tailed Jacana (*Hydrophasianus chirurgus*).

Bower, Mr. G. N.—
Avocet (*Recurvirostra avocetta*), Kottapatam, Guntūr district.

Browne, M.A., Rev. C. H.—
Russell's Viper (*Vipera russellii*), Perambūr.

Cammiade, B.A., B.L., Bar.-at-Law, Mr. L. A.—
Slings used by boys watching fields in Gōdāvari Agency Tracts.
Articles used in sorcery by Māppillas.
Seventeen copper coins (Muhammadan dubs), from Nimmalagūdem, Gōdāvari district.

Campbell, Mr. H. N. C.—
Stone-Curlew (*Oedicnemus scolopax*), Singaperumālkōil, Chingleput district.

Central Provinces, Director of Agriculture—
Two rupees of Farrukhsīyar, found in the Betūl district.
Rupee of Akbar II, found in the Saugor district.

Chatterton, Mr. F.—
Green Turtle (*Chelone mydas*), Madras.

Corporation of Madras—
Japanese Bear (*Ursus arctus*).
Asiatic two-horned Rhinoceros (*Rhinoceros sumatrensis*).
Black swan (*Chenopis atrata*), Australia.
Leopard (*Felis pardus*).
Young and adult specimens of Black Bear (*Melursus ursinus*), South India.
Demoiselle Crane (*Anthropoides virgo*).
Pea-hen (*Pavo cristatus*), partial albino, from Baroda State.

Director of Industries, Madras—
Series of exhibits connected with the manufacture of pencils made from the wood of pencil cedar (*Juniperus procera*) of East Africa.
Slats and pencils made from the woods of *Givotia rottleriformis* and *Gmelina arborea*

Director, Zoological Survey of India, Calcutta—
Fresh-water lamellibranch shells.
Lamellidens marginalis, subsp. *corrianus* (Lea), Madras.
Parreysia corrugata (Müll.), Gūdūr, Nellore district.
Parreysia corrugata, var. *nagpoorensis* (Lea), Nellore district.
Parreysia wynegungaensis (Lea), Gōdāvari River.
Nodularia caeruleus (Lea), Pimpte, S. India.
Lamellidens marginalis (Lam.), Kurnool district.
Carbicula regularis, Prime, S. India.
Corbicula striatella, Desh. S. India.
Velorita delicatula, Preston, Cochin backwater, near Ernākulam.

Dwane, Mr. H. M.—
Tussa silk Moth (*Antheræa paphia*), Madras.

Fernandez, Mr. J. C.—
Nest of the Purple-rumped Sun-bird (*Arachnechthra zeylonica*), from the Museum compound.

Fraser, The Hon'ble Mr. Gordon—
Krait (*Bungarus candidus*), Madras.

Ghatalah, Mr. M. H. P.—
Chrysalises (*Euplœa core*), Banganapalle, Kurnool district.

Gibson, Dr. F. Maitland—
Fish (*Macrones cavasius, Macrones keletius, Barbus dorsalis, Barbus vittatus*), from the Corporation Water-works, Madras.

Hannyngton, I.C.S., Mr. F.—
Collection of Butterflies, Coorg.
Health Officer, Corporation of Madras—
Scorpion (*Palamnæus swammerdami*), Madras.
Johnston, Mr. R. H. A.—
Pieces of allanite, Trichinopoly.
Specimen of molybdenite in quartz, South India.
Fragments of aplite stained with molybdenite ochre, South India.
Kanakasabhapati, Mr. R.—
Abnormal seedlings of cocoanut, Travancore.
Lokanatha Pillai, Mr. M.—
Snake (*Macropisthodon plumbicolor*), Kuppam, North Arcot district.
May, Mrs. K.—
Russell's Viper (*Vipera russellii*), Madras.
Masillamani, B.A., A.R.C.S., A.R.S.M., Mr. E.—
Prehistoric beads (agate, quartz, etc.), found in Travancore.
Travancore minerals:—
Graphite crystals, Vellanad.
Garnet, Tadagamalai.
Phlogopite mica, Pallapallam.
Mica monazite pegmatite, near Thadicaranconum.
Monazite from mica monazite pegmatite, near Thadicaranconum.
Monazite, Tadagay hills.
Pyrrhotite, Tadagamalai.
Zircon, Keelcolam.
Narasinga Rao, M.A., Mr. T. V.—
Egg-case of Mantis on a grass (*Aristida setacea*), Madras.
Organe, Mrs. F. K.—
Scorpion (*Palamnæus swammerdami*), Madras.
Pieris, C.C.S., Mr. P. E.—
Massas of Chōdaganga Deva and Nissanka Malla of Ceylon.
Ross, Mr. T. M.—
Eggs of Pond Tortoise (*Geoemyda trijuga*), Madras.
Royal Asiatic Society, Bombay Branch—
Two rupees of Muhammad Akbar II, found in the Kaira district.
A gold padma tanka of Srī Rāma, found in the West Khāndesh district.
Two gold coins of Jagadēkamalla, found in the East Khāndesh district.
Rupee of Aurangzēb.
Salvation Army Tata Silk Farm, Bangalore—
Series of exhibits connected with the manufacture of silk.
Scott, Mrs. A.—
Mantis (*Gongylus* sp.), Madras.
Shanmukham, Mr. V.—
Scorpion with young ones (*Buthus tamulus*), Madras.
Smith, Rev. R. M. Langdale—
Great Indian Spider (*Pœcilotheria regalis*), Vellore.
Stoney, Mr. R. F.—
Spider (*Gasteracantha* sp.), Nilgiris.
Millipede, Nilgiris.
Coffee Locust (*Aularches miliaris*), Cochin.
Moth (*Himantopterus caudatus*), do.
An operculate land-shell, do.
Subba Rao, Mr. K.—
Spider (*Herennia ornatissima*), Kodukkūr, South Arcot district.
Sundara Raj, M.A., Mr. B.—
Lizard (*Charasia dorsalis*), Anantapur.
Lizard (*Hemidactylus giganteus*), Anantapur.
Eggs of doves, Chittoor.
Carapace of Fresh-water Turtle (*Chitra indica*), from the Coleroon lower anicut, Tanjore district.
Toad (*Bufo melanostictus*), Madras.
Young turtles (*Trionyx leithii*) from Tungabhadra river, Kurnool district.
Eggs of two species of Tern and of the small Indian Pratincole (*Glareola lactea*), Kurnool district.
Eggs and nest of Spotted-billed Duck (*Anas pœcilorhyncha*), Sarvepalli, Nellore district.
Superintendent, Archæological Survey, Southern Circle.—
Stone images of Nāgīnī, Sūrya, a saint and a mukhalinga, from the ruined Saivite temple at Jōti, Cuddapah district.

Krishna image from the Krishna temple at Vijayanagara, Hampi ruins, Bellary district.

Tinnevelly, the Collector of—
Dutch challie, Tiruchendūr, Tinnevelly district.

Tuke, Deaconess—
Snake (*Lycodon aulicus*), Madras.

United Provinces, Government of—
Five rupees of Ghāzī-ud-dīn Haidar and Nāsīr-ud-dīn Haidar, found in the Hardoī district.
Benares rupee of the East India Company, found in the Benares district.
Copper coin of Islām Shāh, found in the Pīlībhīt district.
Three silver coins of Farrukhsīyar and Muhammad, found in the Meerut district.
Three rupees of Farrukhsīyar, found in the Farrukhābād district.
Twenty-five silver coins of Aurangzēb, Farrukhsīyar, Shāh Ālam, Jahāndār and Muhammad Shāh, found in the Fatehpur district.
Nine bronze coins of Hasan Shāh of Jaunpur, found in the Ghāzīpur district.
Ten rupees of Shāh Ālam II, found in the Bāndā district.
Six rupees of Shāh Jahān, Aurangzēb and Farrukhsīyar, found in the Gorakhpur district.
Four rupees of Shāh Ālam II, found in the Allahābād district.
Seven copper coins of Firoz III, found in the Farrukhābād district.
Rupee of Nāsīr-ud-dīn Muhammad of Delhi, found in the Morādābād district.
Four rupees of Sher Shāh, Islām Shāh and Akbar, found in the Jaunpur district.
Two rupees of Shāh Ālam II, found in the Allahābād district.
Copper coin of Husen Shāh of Jaunpur, found in the Sultānpur district.

Walker, Mr. A.—
Moth (*Actias selene*), Madras.

Walker, Mr. G. K.—
Myrmeleonid fly, Madras.
Common Sand-Grouse (*Pteroclurus exustus*), Arkonam.

Wardhā, the Sub-Divisional Magistrate (Arvi Tahsil) of—
Two rupees of Aurangzēb, found at Mouza Pandwadi, Wardhā district.

APPENDIX B.

Classified List of Expenditure of the Government Museum, Connemara Public Library, and the Marine Aquarium, during the year 1916–17.

Government Museum and Connemara Public Library.

	Actuals, 1916–17.	Revised estimate, 1916–17.
	Rs.	Rs.
Salaries—		
Superintendent	10,350	10,875
Local allowance	525	
Total ...	10,875	10,875
Permanent establishment, Government Museum—		
Zoological assistant, herbarium-keeper, archæological assistant, head clerk, second clerk, third clerk, writer, assistant writer, senior and second taxidermists and 31 peons—41 persons ...	10,481	10,600
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and three peons ...	3,204	3,200
Total, Establishment ...	13,685	13,800
Allowances—		
Travelling allowance	439	400
Supplies and Services—		
Cost of specimens purchased on tour	1,701	7,545
Objects of interest and coins purchased at headquarters.		
Fittings, furniture, etc.	1,990	
Cost of books and publications	923	
Lithographic plates	*Nil.*	
Charges for feeding live animals	230	
Cost of indented Europe stores and freight ...	552	
Electric lights and fans	232	
Total, Supplies and Services ...	5,628	7,545
Contingencies—		
Purchase and repair of furniture	182	10,400
Cleaning charges	404	
Rents, rates and taxes	6,590	
Office expenses and miscellaneous	2,123	
Pay of menials	975	
Total, Contingencies ...	10,274	10,400
Total, Government Museum and Connemara Public Library ...	40,901	43,020

Marine Aquarium.

	Actuals, 1916-17.	Revised estimate, 1916-17.
Permanent establishment, Marine Aquarium—	Rs.	Rs.
Head-keeper, second-keeper, third-keeper and two door-keepers —5 persons	948	950
Total, Establishment ...	948	950
Supplies and Services—		
Food for animals	996	1,530
Fittings, etc.	399	
Cost of locally-purchased stores	*Nil.*	
Cost of indented Europe stores and freight ...	*Nil.*	
Total, Supplies and Services ...	1,395	1,530
Contingencies—		
Office expenses and miscellaneous	424	2,100
Pay of menials	1,656	
Total, Contingencies ...	2,080	2,100
Total, Marine Aquarium ...	4,423	4,580
Grand Total ...	45,324	47,600

Order—No. 968, Home (Education), dated 24th July 1917.

Recorded.

2. The thanks of the Government are due to the persons who made donations to the Museum during the year.

3. The Government note with satisfaction the successful continuance of the demonstrations to teachers in Madras schools by the Superintendent of the Museum, and to the pupils of the high schools in Madras City by the Museum assistants; also the increase in the number of readers in the Connemara Library.

(True Extract)

R. Ramachandra Rao,
Secretary to Government.

To the Superintendent, Government Museum.
,, Director of Public Instruction.
,, Home (Miscellaneous) Department.
,, Revenue Department.
,, Accountant-General.
,, Director-General of Archæology (with C.L.).
Editors' Table.

Government of Madras

HOME DEPARTMENT (EDUCATION)

G.O. No. 849, 26th July 1920

Report

Government Museum and Connemara Public Library—1919-20—Recorded.

READ—the following paper:—

Letter—from F. H. GRAVELY, Esq., D.Sc., Superintendent, Government Museum, Madras.
To—the Secretary to Government, Home (Education) Department.
Dated—the 7th July 1920.
No.—576.

I have the honour to forward, for submission to His Excellency the Governor in Council, the report on the working of the Government Museum and the Connemara Public Library during the year 1919-20 and to request that I may be supplied with 135 copies for distribution to other museums, etc.

ENCLOSURE

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM AND THE CONNEMARA PUBLIC LIBRARY FOR 1919-20.

Dr. J. R. Henderson retired from service with effect from the 25th April 1919, handing over charge to the Personal Assistant, who was in charge of the current duties of the office till the afternoon of the 1st May 1919, when Mr. H. Dodwell, who was appointed as acting Superintendent in G.O. No. 532, Home (Education), dated the 29th April 1919, assumed charge. Mr. Dodwell continued in office till the 31st January 1920. The Personal Assistant attended to the current duties of the office from the 15th to the 25th June 1919 and from the 3rd to 14th January 1920, when Mr. Dodwell was deputed by the Government to attend the meetings of the Historical Records Commission at Simla and Lahore, respectively.

In G.O. No. 1482, Home (Education), dated 2nd December 1919, the pay of the Superintendent's post was raised to Rs. 500—50—1,000. Dr. F. H. Gravely took over charge of the office from Mr. Dodwell on the afternoon of the 31st January 1920, having been appointed as Superintendent, Government Museum, and Principal Librarian, Connemara Public Library, with effect from the 1st February 1920.

2. VISITORS.—The number of visitors to the Museum was as follows:—

	1918-19.	1919-20.
Total number of visitors to the old building ...	270,748	382,901
Do. new building...	241,542	349,349
Largest number of visitors on a single day to the old building	43,758	58,372
Largest number of visitors on a single day to the new building	48,576	39,030
Total number of visitors on Sundays to the old building	47,697	67,677
Total number of visitors on Sundays to the new building	39,885	62,468
Total number of gosha visitors (on the first Saturday in each month)	8,126	7,198

The attendance was thus better than that of the previous year except in regard to gosha ladies. This is partly due to the fact that the gosha days in September and October fell on the Muhammadan festival days of Bakrid and Muharram respectively. Kannu Pongal day (the 16th January) was as usual the day on which the Museum was visited by the largest number of people. As it fell on a Friday, the usual weekly holiday, the Museum was specially kept open.

BOMBAY BRANCH
OF THE
Royal Asiatic Society.

The annual Dwadasi festival, which comes second in respect of attendance, fell this year on the first Saturday in January. Accordingly the following Saturday, the 10th January 1920, was reserved for gosha ladies, instead of the first Saturday. The change was previously notified in the *Fort St. George Gazette* and in the principal dailies of the city.

Excluding the special festival days of Dwadasi and Kannu Pongal, the number of visitors (average of the two buildings) in the year under review was 292,787 against 202,747 in the preceding year and 265,276 the average of the five years ending with the preceding year.

Her Excellency the Lady Willingdon visited the Museum on the 19th December 1919. His Excellency the Governor of the French Settlements paid a visit on the 17th February 1920.

3. Buildings.—The extension of the south wing of the old building, for providing additional accommodation to the Natural History section, sanctioned in G.O. No. 1043 W., dated the 4th September 1918, is approaching completion.

The re-flooring of the stuffing room block sanctioned in G.O. No. 295 W., dated the 7th March 1919, was completed in June.

A flagstaff, for which an estimate was sanctioned in March 1919, has been erected in the compound in front of the new building.

The Museum theatre was used on twenty-two occasions, eleven of these being for performances of the Madras Dramatic Society, and four for concerts of the Madras Musical Association.

4. Establishment.—M.R.Ry. T. V. Narasinga Rao, the Herbarium Keeper, was transferred to the Government Victoria College, Palghat, as sub. *pro tem.* Assistant Lecturer, in June 1919. On the representation of Mr. Dodwell, the designation of the appointment was altered to Botanical Assistant, and the scale of pay raised to Rs. 100—5—150, in G.O. No. 824, Home (Education), dated the 2nd July 1919, thus placing it on a footing of equality with the appointments of Archæological and Zoological Assistants. M.R.Ry. S. N. Chandrasekhara Ayyar, B.A. (who has since passed the M.A. Examination), was appointed sub. *pro tem.* Botanical Assistant, with effect from the 9th July 1919.

In G.O. No. 340, Home (Education), dated 18th March 1919, the Government raised the pay of the Senior and Second Taxidermists to Rs. 40—1—50 and Rs. 30—1—40 per mensem, respectively, with effect from the 1st April 1919.

Four additional peons were sanctioned in G.O. No. 524, Home (Education), dated the 26th April 1919, to watch the extensions to the Archæological and Economic galleries and to serve as relieving hands.

The entire staff worked well during the year. A type-writing machine was sanctioned for the office in G.O. No. 944, Home (Education), dated 31st July 1919.

5. Museum Demonstrations.—Demonstrations to students of the higher classes of the high schools in the City continued from December to March. Three batches of pupils were conducted by the three Museum Assistants over special sections on Monday and Tuesday afternoons. The total number of students who attended the demonstrations was 1,305.

A series of four demonstrations to teachers in Madras schools were given by the Superintendent on Saturday forenoons in March, at which 65 teachers were present.

6. History.—The Siamese inscriptions on the four cannon referred to in the Museum Annual Report for 1916–17 have been deciphered. They show that the cannon were used by the body-guards of the King, Queen and second King of Siam, and further that one of them was cast in Siam on 10th April 1728 A.D. The Dutch East India Company established a depot at Ayuthia in the year 1604 and for many years relations between the Dutch and the Siamese were very cordial. Letters are known to have passed between the Royal House of Siam and the House of Orange, and these letters were almost certainly accompanied by presents which may have included the two guns bearing the Orange coat of arms; or these may have been purchased from the company. Our thanks are due to His Royal Highness Prince Damrong and Mr. C. A. Seymour Sewell of the Royal Pages College, Bangkok, for the trouble they took in reading the inscriptions.

Among the additions made to this section were the following :—

(1) From the Government of India, a recruiting badge bearing No. 2240 with ribbon being a specimen approved by His Majesty the King Emperor, for presentation to selected officers engaged in recruiting work.

(2) From Her Royal Highness Princess Mary through the Government of India, one embossed brass box, one bullet pencil case, one New Year Card and one small photo of Her Royal Highness Princess Mary.

7. Archæology and Art.—A duplicate set of specimens of prehistoric antiquities consisting of stone and iron implements, urns and pottery from Adichanallūr, Tinnevelly district and Perumbāir, Chingleput district, and duplicate sculptures from the stupa at Amarāvati were sent to the Hyderabad Museum.

At the request of the Director-General of Archæology in India, the Bhattiprōlu bone relic was sent to the officer in charge of the Archæological section, Indian Museum, Calcutta, for presentation to the Mahabodhi Society, Calcutta.

The Director-General of Archæology in India was requested to depute the Archæological Chemist to inspect some of the Archæological exhibits that are undergoing a certain amount of deterioration and to subject them to examination and treatment. He accordingly visited the Museum on 24th November 1919 and has forwarded a report on the subject. When this was received the Director-General of Archæology was again requested to depute him to visit the Museum in order to consider what special cases would be required and how they should be constructed.

He advised us to send him the lead coins in the collection for treatment and preservation. Forty-two lead coins were accordingly sent to him and were received back after treatment.

The Archæological Assistant was deputed to attend the First Oriental Conference held at Poona in accordance with the orders contained in G.O. No. 1276, Home (Education), dated 21st October 1919. He there read a paper on Silpasastras. Under orders contained in G.O. No. 1164, Home (Education), dated 22nd September 1919, a set of copper-plate grants illustrating the development that has taken place in South Indian Paleography, certain relics and reliquaries from the ruined Buddhist Stupa at Bhattiprōlu and some rare South Indian coins were sent for exhibition.

A number of wood-carvings, which have long been stored in the temporary shed, have been examined and the best of them selected and cleaned for exhibition.

Among the noteworthy additions to the Archæological section are the following sculptures :—

(1) An inscribed stone from the ruined Buddhist Stupa at Guntapalli, Kistna district. The Brahmi inscription of about the 1st century B.C. states that the stone was presented as a stepping stone by a Buddhist devotee.

(2) Stone images of Vishnu and Śrī Dēvī found in Mēlakovalavēdu village and of Pārvatī found in Vēppambattu village, North Arcot district, and acquired under the Treasure Trove Act.

(3) Ten stone sculptures brought from the ruined gopura of the Rāmalingaswāmi temple at Tādpatri, Anantapūr district.

(4) Copper images of Krishna and Pidāri found in Erayangudi village, Tanjore district, and acquired under the Treasure Trove Act.

(5) Stone images of Pārvatī (two), Vīrabhadra, Durga, Śiva, Kāli, and Vishnu, a Nāgakkal, a Yāli, two memorial stones, and three ornamental sculptures from the Mallikārjuna temple at Kambadūr, Anántapūr district.

(6) Copper images of Śiva and Kāli found in Alturti village, Nellore district, and acquired under the provisions of the Treasure Trove Act.

(7) A marble slab containing a scene from the life of Buddha, a marble image of Rati and two inscribed stones from Ghantaśālā, Kistna district. The Buddhist sculpture must presumably have belonged to the ruined Buddhist stupa, which is supposed to have existed in the second century A.D.

(8) A marble image of Sītā from Rāmachandrapuram and a stone image of Pārśvanātha, a Jain tīrthankara from Ālamūru.

(9) A stone relic casket with lid from the remains of the Buddhist stupa at Sālihundam Koṇḍa, Ganjām district, probably of about the 5th century A.D., sent by the Superintendent, Archæological Survey, Southern Circle.

The following undated copper-plate grants have been purchased on the recommendation of the Assistant Archæological Superintendent for Epigraphy, Southern Circle. They were issued by a family of chiefs who were ruling over parts of Orissa and of the Ganjām district about the 10th to the 13th centuries A.D. These are the first plates of this dynasty to be acquired for the Museum.

(1) A set of three plates strung on a ring with a seal bearing a lion facing the proper left and the legend 'Śrī Nēttribhanja Dēvasya'. They record that Nētribhanja Dēva, a chief of the Bhanja family, gave the village of Arātaha to several Brahmans.

(2) A set of three plates strung on a ring with an indistinct impression of a lion. They record that Nētribhanja Dēva, a chief of the Bhanja dynasty, gave the village of Machchhada to a Brahman.

(3) A set of three plates strung on a ring bearing an indistinct impression of a lion. They record that Vidyādharabhanja, a chief of the Bhanja dynasty, gave the village of Mūla Māchchhāda to a Brahman.

The following six copper-plate grants have been received from Government officers for deposit in the Museum:—

(1) The second and last plates of a set of copper-plates without a ring sent by the Deputy Collector of Ātmakūr, Nellore district. They record that the Vijayanagara King Krishṇadēva Mahārāya gave the village of Koṇḍavāśali to a number of Brahmans on the full-moon day in the month of Vaiśākha in the year Vyaya-Śaka 1448 (1526 A.D.).

(2) A single brass plate in two pieces, which belonged to a convict in the Coimbatore Central Jail, secured and sent by the Collector of Coimbatore. It records the arrangement made by the Gavuṇḍans of Nāraṇāpuram to restore the worship in the Aṅgāḷa Paramēśvarī temple, which was disturbed by the outbreak of an epidemic in Śaka 1722 (A.D. 1800). It states that it was issued during the administration of Hurdis, a servant of the Honourable the East India Company.

(3) A single copper plate sent by the Tahsildar of Madakasira, Anantapūr district. It records that during the reign of Praudhadēvarāyala Bukkarāya of Vijayanagara the Reḍḍirikam (chief office) of four villages was conferred on a person named Ārucherla Nallappa Nāyuḍu in Śaka 1429 (1507 A.D.).

(4) A set of five plates strung on a ring with a seal bearing in relief the legend, 'Śri Tribhuvanāmkuśa' and the emblems of a boar, two chauries, a crescent, an elephant goad, the sun, a conch, a drum, a four petalled flower, a flower bud and a throne, found by a ryot in the village of Teki, Gōdāvarī district, while working in his field and secured for Government by the Collector of Gōdāvarī. They record that the Eastern Chāḷukyan King Chōḍaganga Dēva surnamed Rājarāja conferred certain privileges on the descendents of the Teliki family in the 17th year of the reign of the Chōḷa King Kulōttunga I, 1086–1087 A.D. (*Epigraphia Indica*, Volume VI, page 334.)

(5) An incomplete set of 14 plates strung on a ring with a seal bearing an indistinct legend and a bull, found with many images while digging a foundation in the premises of a Siva temple in Thandanthoṭṭam village, Tanjore district, some hundred years ago, acquired by the Epigraphist for the Government of India. Some plates from the beginning, middle and end are missing. The existing plates show that in the 58th year of the Pallava King Vijaya Nandivikramavarman (Nandivarman III) the village of Dayāmukhamangalam was distributed among 308 Brahmans at the instance of the chief Dayāmukha, also that Nandivarman took away from the Ganga King a valuable necklace and the mad elephant called 'Paṭṭavardhana'. (*South Indian Inscriptions*, Volume II, page 517.)

(6) A set of three plates strung on a ring received from the Tahsildar of Kalyānadrug. They record that Rāja Venkaṭapaty Nāyaka of the Vijayanagara Dynasty conferred the right of gaudaship over five villages in Rāyadurg territory on a certain person on the 15th day in the bright fortnight in the month of Jyēshtha in the year Plava-Śāka 1583 (A.D. 1661).

The two following Pallava grants have been presented by M.R.Ry. Jarubūla Venkatēśvarulu, village munsif, Santaravuru, Guntūr district. They add much to the knowledge of Pallava history both in its earlier period and later :—

(1) A set of four plates strung on a ring with a seal bearing some indistinct legend. They record the grant made by the Pallava King Vijayaskandavarman of the village of Ōmgōḍu to a Brahman on the 3rd trayodaśi tithi in the 3rd year of his reign. The date may be ascribed to about 450 A.D.

(2) A set of five plates strung on a ring without a seal. They record the grant made by the Pallava King Simhavarman II of the village of Ōgōmḍu (Ômgōḍu) to a Brahman on the occasion of an eclipse. The plates were subsequently engraved by the order of the king on the 5th tithi in the bright fortnight in the month of Vaiśākha. The date may probably be fixed at about 506 A.D.

Six grants were collected and presented to the Museum by the late M.R.Ry. G. V. Appa Rao Pantulu Garu, Epigraphist of the Vijayanagaram Estate :—

(1) A set of three plates strung on a ring with a seal bearing the legend 'Śrī Anivārita' and a boar, dug up by a ryot of Munjēru in a patch of land adjoining his house and found secured in a pot. They record that the Eastern Chāḷukyan King Kōkilavarma Mahārāja gave the village of Boddēri to a Brahman of Munjēru on the day of a lunar eclipse.

(2) A set of three plates strung on a ring with a seal bearing the emblems of a boar, a crescent, a lotus and the legend, 'Śrī Anivaritāmbu' found along with the previous grant. They record that the Eastern Chāḷukyan King Kōkilavarma Mahārāja gave the village of Veṭṭuvāḍa to a Brahman on the occasion of a lunar eclipse. He in turn distributed the village among a hundred Brahmans living in Munjēru. These are the first grants of this King to be acquired for the Museum.

(3) A set of three plates strung on a ring with a seal bearing in relief the emblems of the sun, the moon, a lotus and the legend 'Śrī Vijayasiddhi' found along with grant No. 1 above. They record that Eastern Chāḷukyan King Mangi Yuvarāja gave the village of Konḍuka-Vilangavāḍa to 103 learned Brahmans on the occasion of a lunar eclipse. These plates supply information about the genealogy of the Chāḷukyan dynasty.

(4) A set of three plates strung on a ring with a seal bearing indistinctly the legend 'Vijayasiddhi' found along with No. 1 above. They record that the Eastern Chāḷukyan King Kokuli Vikramāditya Bhaṭṭāraka gave the village of Munjēru to the residents of Dēpūḍi on an occasion when he was sorely afflicted, perhaps on his death bed.

(5) An incomplete set of four loose plates with indistinct impressions unearthed by a ryot of Kāsimkōṭa while ploughing in his field. They record that the Eastern Chāḷukyan King Bhīma I gave a village in Elamanchi, Kalingadēśa, to certain persons. He is stated to have crushed the army of Krishnarāja.

(6) A set of five plates strung on a ring with a seal surmounted by a high recumbent bull and the emblems of a conch, an elephant goad, a trisula, a battle axe, a crescent, a mace, a noose and a drum, received from the Narasapatam taluk of the Vizagapatam district. They record that the Eastern Ganga King Vajrahasta III gave the district of Gōrasatta together with 35 villages to one of his relatives on the 9th day in the month of Mīna in Śaka 967, A.D. 1045. This is believed to be the oldest known grant of Vajrahasta. (*Epigraphia Indica*, Volume XI, page 147.)

A set of three plates strung on a ring with a seal bearing in relief a standing lion, was found by a man while digging foundations for a mutt at Mālēpāḍu, Cuddapah district, and was presented to the Museum. It records that the Chōḷa chief Puṇyakumāra, who was ruling over the country now comprising the districts of Cuddapah and a portion of Nellore, gave a plot of land in the village of Birapāru to a Brahman on the full-moon day in the month of Kārtika in the fifth year of his reign. The date has been roughly fixed at about the end of the 8th century A.D. (*Epigraphia Indica*, Volume XI, page 337.)

A set of five plates strung on a ring was presented by the Monegar of Daṇḍapalli, Chittoor district, to the Museum. They record that the crown prince Vijayarāya who was ruling over Mulvāy, one of the main divisions of the Vijayanagara Empire, founded a village Kriyāśaktipura and gave it to Krishna Pandita in 1410 A.D. He in turn divided it into several divisions and distributed them among several learned Brahmans. This is the first grant of this prince to be acquired for the Museum.

A set of 31 plates (the highest on record) found in an underground chamber in the temple of Tiruvēlāngāḍu, Chittoor district, was acquired for the Museum under the provisions of the Treasure Trove Act. The plates are strung on a massive ring the ends of which are secured by means of a seal bearing in relief the emblems of a tiger, two fishes, a bow, two lamps, two ankuśas, two spears, two flagstaffs, two chāmaras, a drum, a varaha, a swastika and tripod, a parasol and a legend in Sanskrit which has been translated, "Hail! Prosperity! This is Parakēsarivarman Rajēndra-Chōḷa's edict to be borne on the glittering jewels of the row of royal diadems." They record that in his sixth year the Chōḷa King Rājēndra-Chōḷa I granted the village of Palaiyanūr to the Śiva temple at Tiruvēlāngāḍu. The first ten plates are in Sanskrit and give valuable information about the Chōḷa genealogy and the history of different Chōḷa kings. The second 21 plates are in Tamil and register the order of the kings and specify the boundaries of the village at the time of the grant, i.e., 1016–1017 A.D. This is a very important and valuable acquisition.

Her Excellency Lady Willingdon presented four inscribed bricks from Babylon.

The Archæological Assistant toured in North Arcot, Anantapūr, Chingleput, Kistna and Gōdāvarī districts.

8. Numismatics.—The manuscript of the Catalogue of the coins of Haidar Ali and Tipu Sultan has been sent to the Government Press and is passing through the proof stage. Arrangements are being made for the preparation of the necessary plates.

The following coins were acquired under the provisions of the Indian Treasure Trove Act:—

(1) An important find of twenty-one gold coins discovered during the removal of stones and digging in a field by Gurram Chinnā Reddi and his servants in Parla village, Kurnool district. They comprise 14 varahas, 6 Kadamba fanams and one quarter Kadamba fanam. The fourteen varahas are all round and are of the well known Chāḷukyan type called padmaṭaṅka. They preserve their cup-shaped form in almost all cases. One of them is thinner and larger than the others. They show various punch-marks on the surface, the most prominent of which are the two auspicious symbols Śrī in the old Telugu-Kannada script on either side of the periphery at the ends of the horizontal diameter. At one extremity of the vertical diameter is found in Telugu-Kannada characters the name or title of the king who issued the coin and at the other end is found a hook attached to a spear bearing the sun and moon. There is also a stroke below the hook. The other symbols are figures of a lion or tiger with open mouth, raised paw and twisted tail very crudely represented by dots and lines. The central part is occupied by the figure of a lion. The reverse side of the coin is blank. Ten of the coins bear the legend 'ṇṭakaka,' one of them bears 'nnakiti' another 'Aksha', another 'Kshada' or 'Bada' and one 'Ji'. The legends are incomplete and till more coins are found it is not possible to say exactly what these letters mean. They are similar to the Telugu-Chōḷa coins of the Kodur Treasure Trove Case and were probably issued by Telugu-Chōḷa Chiefs who were ruling in Telugu districts.

(2) Seventeen punch-marked silver coins known as Purāṇās, found in a broken pot imbedded in the ground in a waste land in Kanniankuttai village, Salem district. This is the earliest form of metallic currency known in India, coins of this type being current in the time of Buddha and even before.

(3) One Kāḷi fanam found in the village of Nāganūr, Trichinopoly district.

The following Indo-Greek silver coins were received on loan from the Director-General of Archæology in India, Simla: —four coins of Menander, two of Zoilos, two of Appallodotos, one of Archebois and two of Antimachos.

Three Indo-Danish coins, one (lead) of Christian V and two (copper) of Christian VII were purchased from a coin collector; also one Indo-French coin with inscription 'Kāraikkāl.'

The Museum is further indebted to the Governments of Bengal, Bihar and Orissa, Central Provinces, and United Provinces, to the Bombay Branch of the Royal Asiatic Society, to the Provincial Museum, Lucknow, and to the Superintendent, Archæological Survey, Western Circle, for a total of fifty coins presented in the course of the year.

9. Economic and Botanical.—In both the Economic and Botanical galleries a large number of old labels were replaced. An attempt is being made to give the names of specimens in Hindi, Tamil, Telugu, Kanarese and Malayalam so far as they can be ascertained. A number of pulses, food-grains and plant parts of medicinal value that were available locally were purchased to replace the bad specimens in the gallery. Some of the materials in formalin have similarly been replaced by fresh ones. The building stones have been rearranged according to their lithological characters. The Botanical gallery has been rearranged to make better use of the light and space available. A few fruits, flowers, seeds, etc., that were found growing within the City of Madras have been collected and preserved for exhibition in their respective places.

A catalogue of all the articles in the Economic gallery excepting the timbers (already catalogued) has been under preparation and will be ready for publication shortly.

10. Zoology.—A large number of specimens, chiefly birds and fishes, have been substituted for older and less perfect ones in the collection. The scientific names of most of the exhibits have been brought up-to-date. A catalogue of South Indian birds with vernacular names, wherever possible, is in progress.

Among the more important additions the following may be noted :—

(1) A specimen of the Green Sand-piper (*Totanus ochropus*) from Chingleput.

(2) The following species of fish new to the collection:—*Therapon quadrilineatus*, *Cypselurus poecilopterus*, and *Histiophorus brevirostris*, all from Madras. F. Day in the 'Fauna of British India, Fishes', Volume II, page 133, mentions that the largest specimen of the sword fish (*Histiophorus brevirostris*) that he saw in the Madras Museum was 4 feet 4 inches in length. But this specimen has not now been in the Museum from a long time; it was, perhaps, sent for the International Fisheries Exhibition, London, 1883 (vide Day's Catalogue of Exhibits in the Indian Section, International Fisheries Exhibition London, 1883, page 94) and not returned. The specimen recently procured for the Museum is much larger than the one recorded by Day, being 5 feet 1 inch in length from the tip of the upper jaw to the end of the caudal fin.

(3) A number of molluscan shells new to the collection :—*Cypræa turdus*, *Leidomus vittatus*, *Scapharca gubernaculatum*, *Donax australis* and *Matricinula plicataria*, all from Madras.

The Museum is indebted to Mr. Armitage for a named collection of shells from Madras.

In the Vivarium a brown tree-snake (*Dendrelaphis tristis*) laid six eggs in August, a monitor lizard (*Varanus bengalensis*) laid fifteen eggs in November; and a pond-tortoise (*Emyda granosa var. vittata*) laid two eggs in February. Two screech owls (*Strix flammea*) and a specimen of South Indian Loris (*Loris lydekkerianus*) were added to the exhibits.

Lieut.-Col. F. Wall, I.M.S., visited the Museum for the purpose of examining the snakes in the collection, and assisted by identifying doubtful specimens.

11. Connemara Public Library.—The Library was closed to the public on two occasions—on the 24th November 1919, a public holiday in honour of the visit of His Excellency the Viceroy to Madras, and on the 13th December 1919 in connexion with the peace celebrations.

The total number of readers during the year was 19,747 against 19,454 in 1918-19—

Largest number of readers in a day	196
Smallest do.	21
Largest number of readers on a Sunday	152
Smallest do.	58

The number of standard works added to the library was 350, of which 282 were purchased and 68 presented.

The total number of volumes consulted was 72,588, as against 30,603 last year, and 42,196 the year before, which shows that much better use was made of the library. Last year's figure is exceptionally low, doubtless a result of the Influenza epidemic. This year's is the highest on record. A statement of the volumes consulted by visitors during the last two years arranged under subjects is subjoined :—

	1918-19.	1919-20.
Anatomy ; biology ; natural history ; zoology	1,348	3,264
Anthropology ; folklore	206	751
Archæology ; architecture	263	812
Arts ; industries	1,266	3,011
Atlases ; maps	70	244
Belles lettres	6,009	14,152
Botany ; arboriculture ; horticulture...	367	884
Chemistry ; agriculture ; photography	163	688
Classics	206	635
Dictionaries ; encyclopædias ; gazetteers ; manuals... ...	6,749	14,959
Economic products	255	809
Education ; ethics ; logic	1,340	3,490
Exhibitions	62	120
Forestry ; timbers	105	219
Geography ; physical geography ; physiography	216	399
Geology	165	263
History	5,342	12,591
Jurisprudence	324	880
Medicine ; surgery ; pathology	214	574
Microscopy	15	23
Mineralogy ; metallurgy	207	371
Natural philosophy	652	1,150
Numismatics ; medals ; heraldry	95	144
Philology ; epigraphy...	1,724	3,424
Photographs	206	360
Physiology	239	558
Public health	42	82
Religion	1,029	3,821
Sport and games	258	526
Travels ; voyages	196	390
Vernacular languages	64	105
Fort St. George Gazette (other than current issues)	1,206	2,939
Total ...	30,603	72,588

12. University Library.—The total number of readers rose from 10,400 to 10,499 during the year under report and 15,347 volumes were consulted as against 15,522 volumes in the previous year.

The privilege of taking books on loan from the library against a deposit of Rs. 20 was enjoyed by 229 University Readers as against 211 in 1918-1919 and 5,030 volumes were consulted in this way as against 4,893 volumes in the previous year.

The books and periodicals acquired during the year are being catalogued according to author's names and indexed concurrently according to subjects.

13. Valuable Stock.—The necessary inventory was maintained and duly checked. The usual list of donations and statement of expenditure are appended.

Appendix A.

Donations, 1919–20.

Armitage, Mr. F.—
Collection of named shells of Madras.

Assistant Archæological Superintendent for Epigraphy, Southern Circle, Madras—
Seventeen sets of copper plates.

Bengal Government—
Six rupees of Ghiyās-ud-din Bahādur Shāh, Dāūd Shāh, Sher Shāh and Islam Shāh, found in the Pābna district.

Bihar and Orissa Coin Committee, Patna Museum—
Two rupees of Ghiyās-ud-din Balban, found in the Monghyr district.

Blackwood, Captain N. O'Reilly—
Three copper coins, found near Babylon.

Bobbili, The Maharaja of, G.C.I.E., C.B.E.—
Pheasant-tailed Jacana (*Hydrophasianus chirurgas*).
Skull of Indian Wild Boar (*Sus cristatus*).

Central Provinces, Director of Industries—
Two unassigned Indo Sassanian coins found in the Jubbulpore district.
Three copper coins of Abdullah Kutb Shāh of Golconda, Abdul Hasan, Tāna Shāh and Aurangzeb, found in the Wardhā district.
Five rupees of Aurangzeb, found in the Nāgpur district.
Two rupees of Shāh Alam II, found in the Buldāna district.
Five rupees of Aurangzeb, found in the Nimār district.
Three rupees of Aurangzeb, Muhammad Shāh and Ahmad Shāh, found in the Amraotī district.

Corley, Mr. F. E.—
Snake (*Hydrophobus nympha*), Madras.

Corporation of Madras—
Bronze-winged dove (*Chalcophaps indica*).
The Demoiselle crane (*Anthropoides virgo*).
White-necked stork (*Dissura episcopus*).
Albino House-crow (*Corvus splendens*).
Crocodile (*Crocodilus palustris*).
Lemur.
Rose-breasted cockatoo (*Cacatua roseicapilla*).
South Indian muntjac (*Muntiacus malabaricus*).
Indian antelope or Black Buck (*Antilope cervicapra*).
Four-horned antelope (*Tetraceros quadricornis*).
Orang-utan (*Pongo pygmæus*).
Phalanger (*Trichosurus* sp.).

Davis, Mr. S.—
Live owls (*Strix flammea*).

Director, Zoological Survey of India, Calcutta—
Shells (*Mysorella costigera*), Madras.

Gillman, Mrs. H. F. W.—
Mandarine duck (*Aex galericulata*), China.

Gopala Ayyar, Mr. E. S.—
Snake (*Typhlops braminus*), Madras.

Government of India, Army Department—
One recruiting badge with ribbon.

Government of India, Education Department—
Embossed brass box.
Bullet pencil case.
New year card.
Small photo of Her Royal Highness Princess Mary.

Hamid Husain Sahib, Mr. M.—
Moth (*Actias selene*), Madras.

Her Excellency Lady Willingdon—
Four Babylonian bricks from Mesopotamia.

Hoshangābād, Deputy Commissioner—
Three rupees of Shāh Ālam II, found in the Hoshangābād district.

Johnston, Mr. R. H. A.—
Ant-like spider, Waltair.

Lucknow, Provincial Museum, Curator—
One silver coin of Siläditya.

Raghavan, B.A., Mr. M. D.—
Pond-tortoise (*Geoemyda trijuga*), Madras.
Beetle (*Chrysochroa chinensis*), Madras.
Water-snake (*Tropidonotus piscator*), Madras.
Black-scorpion (*Palamnaeus swammerdami*), Madras.

Rajagopal, Mr. Aina—
Indian pangolin (*Manis crassicandata*).

Ramasesha Ayyar, Mr. A.—
Scorpion with a bifurcated tail (*Palamnaeus swammerdami*), Tiruttani.

Rodgers, Mr. W. H.—
Common Indian mungoose (*Mungos mungo*).

Royal Asiatic Society, Bombay Branch—
Punch-marked flat blank gold pillet, found in Phaltan State.
Punch-marked round pillet, found in Phaltan State.

Sundara Raj, M.A., Mr. B.—
Eggs of common myna (*Acridotheres tristis*).
Egg of pond-tortoise (*Geoemyda trijugä*), Perambur.
Cluster of eggs of a snake.

Superintendent, Archæological Survey, Southern Circle, Madras—
A stone relic-casket, found in a ruined Buddhist stupa at Sälihundam konda, Ganjām district.

Superintendent, Archæological Survey, Western Circle—
Nine copper coins of Alī I, Ibrāhīm II, Muhammad Alī II and Sikandar of the Adil Shāhi dynasty of Bijāpur.

United Provinces Government—
Two rupees of Shāh Alam II, found in the Jālaun district.
Rupee of Muhammad Shāh, found in the Bijnor district.
Two copper coins of Akbar, found in the Manipura district.
One copper coin of Alā-ud-dīn Muhammad, found in the Allahābād district.
One rupee of Aurangzeb, found in the Azamgarh district.—

Walker, Mr. G. K.—
Small Indian civet (*Viverricula malaccensis*), Madras.

Woodhouse Adolphus, Mr. W. H.—
Tree-Viper (*Lachesis gramineus*).

APPENDIX B.

Classified list of Expenditure of the Government Museum and Connemara Public Library during the year 1919-20.

	Actuals, 1919-20.	Revised estimate, 1919-20.
	RS.	RS.
Salaries—		
Superintendent and Principal Librarian	4,385	4,600
Duty allowance	35	
Total ...	4,420	4,600
Permanent establishment, Government Museum—		
Zoological assistant, botanical assistant, archæological assistant, head clerk, second clerk, third clerk, writer, assistant writer, senior and second taxidermists and 35 peons—45 persons	11,446	11,500
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and three peons ...	2,340	2,300
Total, Establishment ...	13,786	13,8[illegible]
Allowances—		
Travelling allowance	952	5[illegible]
House-rent and other allowances	2,031	2,050
Total ...	2,983	2,550
Supplies and Services—		
Cost of specimens purchased on tour	611	5,350
Objects of interest and coins purchased at head-quarters		
Fittings, furniture, etc.	2,907	
Cost of books and publications	2,420	
Lithographic plates	Nil.	
Charges for feeding live animals	340	
Cost of indented Europe stores and freight ...	13	
Electric lights and fans	267	
Total, Supplies and Services ...	6,558	
Contingencies—		
Purchase and repair of furniture	209	10,000
Cleaning charges	571	
Rents, rates and taxes	6,336	
Office expenses and miscellaneous	2,282	
Pay of menials	1,339	
Total, Contingencies ...	10,737	10,000
Grand total ...	38,484	36,300

Order—No. 849, Home (Education), dated 26th July 1920.

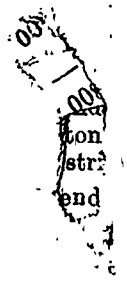
Recorded.

2. The thanks of the Government are due to all who made donations to the Museum during the year.

(True extract)

R. RAMACHANDRA RAO,
Secretary to Government.

To the Superintendent, Government Museum.
" Director of Public Instruction.
" Home (Miscellaneous) Department.
" Revenue Department.
" Public Works Department.
" Accountant-General.
" Director-General of Archæology (with C.L.).
" Publicity Officer.
Editors' Table.



PRESENTED BY

Government of Madras

LAW (EDUCATION) DEPARTMENT

G.O. No. 1051, 18th July 1921

Report

Government Museum and Connemara Public Library—1920-21—recorded.

READ—the following paper :—

Letter—from F. H. GRAVELY, Esq., D.Sc., Superintendent, Government Museum, Madras.
To—the Secretary to Government, Law (Education) Department.
Dated—the 5th July 1921.
No.—777-1.

I have the honour to forward, for submission to His Excellency the Governor in Council, the report on the working of the Government Museum and the Connemara Public Library during the year 1920-21 and to request that I may be supplied with 135 copies for distribution to other Museums, etc.

ENCLOSURE.

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM AND THE CONNEMARA PUBLIC LIBRARY FOR 1920-21.

During the whole of the year under report Dr. F. H. Gravely was in charge. He was deputed by Government to attend the meetings of the Indian Science Congress in Calcutta and Entomological Conference at Pusa in February, on account of which he was absent from headquarters from the 29th January to 14th February, during which time the Personal Assistant was in charge of the current duties of the office.

2. VISITORS.—A statement of the number of visitors is given below :—

	1919-20.	1920-21.
Total number of visitors, Old Building	382,901	303,024
Do. New Building	349,349	284,683
Largest number of visitors on a single day, Old Building.	58,372	35,960
Largest number of visitors on a single day, New Building.	39,030	31,323
Total number on Sundays, Old Building ...	67,677	60,376
Do. New Building ...	62,468	55,922
Total number on gosha days	7,198	6,382

The decrease in the total number of visitors is partly due to the fall in the number of visitors on Kannupongal and Dwadasi festivals, as will be seen from the following figures :—

	Old Building.	New Building.
Kannupongal, 1919-20	58,372	39,030
Do. 1920-21	35,960	31,323
Dwadasi, 1919-20	22,713	12,817
Do. 1920-21	19,163	30,111

Excluding these festival occasions, the average number of visitors in the year under review for the two buildings was 242,447 against 292,787 in the preceding year, and 267,996, the average of the previous five years. The Museum was closed to the public at 2 p.m. on Monday the 10th January 1921, in honour of the arrival of H.R.H. the Duke of Connaught.

3. BUILDINGS AND GROUNDS.—The extensions to the Natural History section have been completed and the buildings were taken over from the Public Works Department on the 4th December 1920. They have not, however, been thrown open to the public because rearrangement is exceedingly slow with our limited staff. Improvements sanctioned in G.O. No. 803 W., dated 21st May 1920, have been carried out to the roof of the stuffing room which was very leaky.

In view of the frequent occurrence of bicycle thefts, a bicycle stand has been erected in the office verandah for the use of visitors to the Museum and the Library.

The question of adequate protection of buildings against fire was also taken up during the year, and the Museum and Library buildings have now been furnished with a number of additional fire appliances, and sanction has been obtained for the extension of the telephone to the Superintendent's office, where it will be available for use in case of fire occurring at night. The hydrants in the compound have also been improved.

Special attention has been bestowed on the grounds surrounding the building. Several trees have been cut down so as to show others to better advantage, a number of dead trees have been replaced and additional bushes planted, and the whole garden is now being laid out afresh. In this work the services of the Government Horticulturist have been of great assistance. The new branch road approved by Government in G.O. No. 1028 W., dated 8th July 1920, has also been opened and has added considerably to the appearance of the place.

The Museum Theatre.—The theatre continued to be very much in demand and was used on twenty-one occasions, excluding the days of rehearsals.

4. Establishment.—M.R.Ry. S. N. Chandrasekharan, M.A., who was appointed as Botanical Assistant on the 9th July 1919, left on the 30th July 1920 to take up the appointment of Assistant in Botany in the Agricultural College, Coimbatore. M.R.Ry. P. V. Mayuranathan, B.A., was appointed to the post sub. *pro tem.* with effect from the 1st August 1920.

During the year Government sanctioned the appointment of a separate Sub-Librarian for the Library. The post of the third attendant was abolished and two additional attendants sanctioned. The Sub-Librarian and attendants were appointed from the 1st September and have been confirmed with effect from the same date.

The entire staff worked well during the year.

5. Tours.—Owing to the large amount of work requiring to be done at head-quarters, and to the necessity for meeting the cost of the increase in library staff, very little touring has been done this year.

The Superintendent, as already noted, was deputed to attend the Indian Science Congress in Calcutta and the Entomological Conference at Pusa where he gained useful information as to scientific work now in progress.

The Zoological Assistant accompanied him to Calcutta to attend the Science Congress and remained there till after the Superintendent's return from Pusa, selecting specimens from the collections of the Zoological Survey of India for use in connection with the filling of the new Invertebrate Gallery. Our thanks are due to the Director of the Zoological Survey both for the specimens and for the general facilities granted.

The Archæological Assistant went to Conjeeveram and the Cheyyar Taluk of North Arcot in March. In the former place he attended to the removal to Madras of a large figure of Buddha. In the latter he examined in connection with the Treasure Trove Act, an image of Siva recently found in Echchur village.

6. Demonstrations.—The demonstrations to pupils began this year in the middle of January and extended to about the middle of April. The total number of pupils expected to attend the demonstrations according to the programme was 1,734, but only 1,014 actually came. This was due partly to difficulties of transport during the tram strike, and partly to certain festivals falling on the demonstration days.

Five demonstrations were given to teachers by the Superintendent from January to March 1921, the average attendance being between 9 and 10.

7. Art and Archæology.—The numerous articles, mostly useless, that have accumulated in the godowns during past years have all been sorted and the best of them put in their proper places in the public galleries. Arrangements are being made for the sale by public auction of useless articles and for proper storage of the rest for reference in connection with research work, or in some cases for their distribution to other Museums.

Eighteen duplicate specimens of prehistoric stone implements were sent to the Provincial Museum, Lucknow. A set of duplicates of prehistoric pottery from Adichanallur and Coimbatore, iron implements from Adichanallur, stone implements from Amaravati, and some brass-ware were presented to the Patna Museum. Eighteen duplicates of Amaravati sculptures were sent to the Indian Museum, Calcutta.

The whole metal-ware collection in the Art gallery has been carefully examined and duplicates removed, thus bringing into prominence those specimens that are likely to be of interest to the public and showing them to greater advantage. They have been arranged according to the purposes for which they are used. The cases have all been relabelled and the work of labelling individual exhibits has been taken in hand.

The collection of metal-ware has been augmented by several purchases during the year, but a great deal more needs to be done to make it truly representative of the finest products of the indigenous arts of the Presidency.

Unfortunately it at present contains many specimens which, though better than nothing, are not nearly as good as they ought to be, and so long as these are on our hands, economy forbids the purchase of better ones. Some improvement is, however, being made by giving the inferior specimens as part payment for really good ones when opportunity for securing these occurs.

The Archæological Chemist in India visited the Museum last April, in order to discuss with me the preservation of the bronze images. He hopes to arrange in consultation with the Director-General of Archæology to do the necessary work and to come back to carry it out next October.

The Hindu sculpture gallery was to some extent rearranged, bringing together different images of the same deity in one group and thus affording facilities for comparative study. Many of the labels were renewed and made more descriptive.

With the object of identifying the several scenes in the Amaravati sculptures the Superintendent, Archæological Survey, Southern Circle, supplied at our request a set of photographs of them which were sent to M. Foucher, Officer in charge of the Archæological Section, Indian Museum, Calcutta, who has kindly consented to identify them so far as this is possible.

The Curator, Patna Museum, was deputed by the Government of Behar and Orissa to study the arrangement of the exhibits in this Museum, more particularly the prehistoric pottery in the Archæological collection. He was afforded every facility. Dr. Thomas, Librarian, India Office Library (London), Captain A. M. Hocart, Archæological Commissioner, Ceylon, and Dr. Ananda Coomaraswami, Officer in charge of the Indian Art Museum (Boston), U.S.A., spent some time in studying the exhibits in the Archæological section, and photographs of some of the more interesting exhibits were taken by the last named.

At the request of the Private Secretary to His Excellency the Governor of Bengal, Messrs. Lawrence and Mayo made a replica in crystal glass of the relic casket in which the bone relic from Bhattiprolu was found. In this the relic was placed when it was presented by His Excellency to the Maha Bodhi Society, Calcutta.

The most noteworthy additions to this section are the following :—

(1) A stone image of a saivite saint presented by Capt. B. S. Chalam, I.M.S., Tondiarpet.

(2) A stone image of Ganesa found in Dindigul, Madura district, and acquired under the Treasure Trove Act.

(3) A copper image of Natesa found in Adikkathevan village, Tanjore district, and acquired under the Treasure Trove Act.

(4) A copper image of a Kali and Sulam found in Sennian Viduthi village, Tanjore district, and acquired under the Treasure Trove Act.

(5) Copper images of Bikshandar, Vishnu and two goddesses found in Tirukkalar village, Tanjore district, and acquired under the Treasure Trove Act.

(6) A megalithic statue of Buddha over 7 feet in height presented by the Trustee of the Kamakshi Amman Temple, Conjeeveram, at the instance of the Assistant Archæological Superintendent for Epigraphy, Southern Circle.

Numismatics.—The catalogue of coins of Haidar Ali and Tipu Sultan is nearly ready for publication, and its plates have already been received from the Oxford University Press.

The recording of finds of treasure trove coins has been systematized. All information asked for in G.O. No. 604, Public, dated 26th July 1907, is now kept together in special registers prepared for this purpose.

The following coins were acquired under the Treasure Trove Act:—

(1) Portions of two gold coins with inscription "Charama" and "Kshatrapa" in Gupta characters of the 5th or 6th century A.D., found in Mukundanallur village, South Arcot district.

(2) Eighty gold fanams found in Kattampatti village, South Arcot district. There are two varieties, both by Ramaraja, son of Sivaji of Tanjore, who occupied the fortress of Gingee when it was under the Maratha occupation from 1677 to 1690 A.D. The following are descriptions :—

First variety ... ... { Obv.—The figure of the Raja with the sun and moon on either side. Rev.—Inscription "Rama Rau" in Devanagari script.

Second variety ... ... { Obv.—Same. Rev.—Blank.

(3) Gold coins of Ghiyas-ud-din Tughlaq and Ala-ud-din Khilgi found in Karanaipuducheri village, Chingleput district.

(4) Seven hundred and four gold Viraraya fanams and one copper Viraraya cash found in Orattukuppai village, Coimbatore district.

(5) Gold mohars of Aurangzeb and two of Muhammad Shah and one copper cash of Krishna Devaraya of Vijayanagara found in Dommara Nandyala village, Cuddapah district.

(6) Forty-eight gold half pagodas of Devaraya of Vijayanagara found in Chapaud village, Cuddapah district.

(7) Twenty gold old Madras Star pagodas struck by the Honourable the East India Company and found in Purlambakkam village, Chingleput district.

Six lead Indo-Danish coins of Frederick III and Christian IV were purchased from a coin dealer in Tanjore district.

Coins from Kattambatti, Orattukuppi, and Chapaud villages have been distributed to the several Provincial Museums and Durbars in accordance with the rules to regulate proceedings under the Treasure Trove Act (appended in G.O. No. 604, Public, dated 26th July 1907).

The Museum is indebted to the Governments of Bengal, Bihar and Orissa, and Central Provinces and to the Bombay Branch of the Royal Asiatic Society for a total of 13 coins presented to it in the course of the year.

The special numismatist to the Government of Mysore spent some time here in studying the system of cataloguing and storing our collection of coins.

Zoology.—The new extensions to the Zoological section having been completed the congestion in the old Birds and Mammals gallery has been relieved by retaining only the birds in that room. The Mammal exhibits are ultimately to be arranged in new cases on the ground-floor of the new extension but this has not yet been done on account of the difficulty of obtaining glass of sufficiently large size for the necessary cases. The top-floor of the new extension is set apart for fishes, thus setting free the whole of the old room for invertebrates. At present both rooms are closed for rearrangement.

The publication of the catalogue of South Indian birds mentioned in the last report has been delayed pending the appearance of an authoritative "Hand List of Birds of India" by Mr. E. C. Stuart Baker which is expected shortly.

In addition to the specimens sent by the Zoological Survey of India (see under *Tours*) a number of invertebrates have been collected towards the formation of a reserve collection, the lack of which makes it impossible for us to deal properly with the new invertebrate gallery at present. A reference collection of this kind is also necessary to assist in the work of identification.

A collection of snakes, including all specimens of the families Typhlopidæ and Uropeltidæ, was sent to Col. Wall and has been returned to us named. Our thanks are due to him for his work.

Several duplicate Zoological specimens were presented to the following institutions:—Pithapur Raja's College, Cocanada, and the Women's Christian College, Madras, and the Government High School, Tiruvalur.

In March the vivarium was abolished as it is out of place in the Museum now that there are Zoological gardens in the People's Park and the room it occupied is needed for other purposes.

9. Botanical and Economic.—A herbarium representative of the plants growing in and around the City of Madras has been started and is progressing. Over four hundred specimens of flowering plants including grasses have been pressed, mounted and identified. It is hoped that this collection when completed will be of service to schools as an aid to the identification of common plants such as should be dealt with in Nature Study work.

In the Botanical gallery a number of soiled labels were renewed and bad specimens replaced.

The catalogue of the economic products other than timbers referred to in the last year's report has been completed and is now in proof.

10. Valuable Stock.—In checking the inventory of valuable stock my attention was called by the Assistants in charge of the articles to the fact that many are damaged or incomplete and have been thus for a long time. I have been into the matter personally as fully as possible and find that the system rather than the Assistants responsible were really to blame. A fresh inventory is being drawn up and orders passed which will, I hope, ensure the keeping of the articles in good order in future.

The usual list of donations and statement of expenditure are appended.

11. Connemara Public Library.—The Library was closed to the public on the afternoon of the 10th January and on the 15th January on account of the visit to the city of His Royal Highness the Duke of Connaught.

The total number of readers during the year rose from 19,747 in 1919-1920 to 20,707 in 1920-1921.

	1920-1921.	1919-1920.
Largest number of readers in a day	156	196
Smallest do. do.	11	21
Largest do. on a Sunday	145	152
Smallest do. do.	57	58

The figures indicate that, although there is still a rush on Saturdays and Sundays, there is on the whole a steadier stream of readers than before. In spite of the rise in the number of readers, the total number of volumes consulted fell from 72,588 in 1919-1920 (the highest on record) to 50,229, exclusive of 1,460 issued in connexion with Museum work. This is due mainly to two causes. Firstly, recent additions to the Library are now placed in a special case where they are seen by all on entering the building, with the result that visitors now take one or two of them for reading, when formerly they would have taken a number of older works for consultation only. Secondly, the change in the time at which the University Library is open to that at which most readers usually come has enabled them to make greater use of that Library, over 17,000 more volumes having been consulted there this year than last.

The usual statement showing the number of volumes consulted in each subject is omitted, both because it has little meaning in the absence of figures showing the strength of the Library in each subject and because, under present conditions, it takes a disproportionate amount of time to ascertain the figures. It is hoped to reintroduce the statement when a subject-classification of the contents of the Library has been worked out.

The British Patent publications which have been stored here from very early times have all been transferred to the office of the Director of Industries, the godowns in which they were kept having been demolished to make room for the extensions to the Natural History Section.

The number of standard works added to the Library this year is 246, of which 189 were purchased, and 57 presented. The small number of additions made during the year is due mainly to the enormous rise in the prices of books.

The Sub-Librarian, since his appointment in September 1920, has been paying special attention to the completing of imperfect sets of periodicals, the passing through the press of the Sixth Supplement to the Author's Catalogue, the classification and arrangement of Parliamentary Papers and the preservation of old and dilapidated volumes, especially of rare works; and steady and systematic endeavour is made to select the books most suitable for purchase. His services are also greatly in demand as a Reference Librarian by visitors in need of guidance in the use of the books available. Though this and routine work has left him no time to do any regular stock-taking, he is doing what he can to check the contents of the Library. The need for increased accommodation for books is extremely urgent. The Public Works Department have been addressed and estimates are being prepared.

Dr. F. W. Thomas, of the India Office Library, visited this Library on the 16th December 1920 and expressed his appreciation of the work attempted.

Under instructions from Government contained in G. O. No. 882, Home (Education), dated 6th August 1920, the Director of Public Instruction held at his office a conference of the officers and representatives of various libraries in the city, on the 20th December 1920, when the following resolutions were passed:—

1. That this meeting is of opinion that in view of the lack of adequate office staff attached to the Connemara Public Library it will be necessary, to begin with, to limit the scheme of the inter-library system to Madras City, but that there is no objection to the inclusion as a special case of Coimbatore in the scheme from the beginning, if the Forest and Agricultural Colleges so desire.

2. That this Committee is of the opinion that as the success of the inter-library system depends on the adoption of a uniform and satisfactory system of cataloguing, it is necessary to train Library Assistants in the technique of library work. Steps may be taken at the outset to depute Government servants or officers of Government working in Government College Libraries to undergo the necessary training in the Imperial Library, Calcutta.

3. That this Committee requests Dr. Gravely to correspond with the chief libraries of the city with a view to ascertaining their opinions as to the extent to which they would be prepared to co-operate in purchasing and borrowing and to convene a meeting of representatives of such libraries as respond to this circular to consider the replies.

4. That this meeting is of opinion that it is very desirable to develop the Library of the Registrar of Books in such a way that it may ultimately become a library of vernacular works and form part of the Connemara Public Library.

Resolution No. 3 is now being dealt with by the Principal Librarian as the first step towards giving effect to the others.

12. University Library.—The total number of readers rose from 10,499 to 12,481 during the year under report and 27,520 volumes were consulted as against 15,347 volumes in the previous year. This enormous increase is the result of the alteration in the hours of opening on Mondays, Tuesdays, Wednesdays and Thursdays from 7·30—2·0 to 10·0—5·0.

The privilege of taking books on loan from the Library was enjoyed by 248 University readers as against 229 in 1919-20 and 5,554 volumes were taken as against 5,030 volumes in the previous year.

The books and periodicals acquired during the year are being catalogued under authors' names and indexed according to subjects.

Appendix A.

Donations, 1920-21.

Beeson, Mr. C.—
Spider (*Poecilotheria regalis*, Poc.), Dehra Dun.

Chalam, Captain, I.M.S.—
Stone image of a Saivite saint, found in Tondiarpet, Madras.

Christopherus, Abel, Mr. S.—
Three copper coins, Mannargudi.

Corporation of Madras.—
Black swan (*Chenopis atrata*).
Orang-outan (*Pongo pygmaeus*).
Silver kalij pheasant (*Gennaeus nycthemerus*).
Spider monkey.

Dharmakartha of Sri Kamakshi Amman temple at Conjeeveram.—
Standing Buddha image of above 7 feet in height.

Director of Fisheries, Madras.—
Elliot's dolphin (*Steno perniger*), Madras.

Director of Industries, Central Provinces.—
One copper coin of Muhammad Shah, found in Amraoti district.
One rupee of Muhammad Shah, found in Nagpur district.
Seven rupees of Aurangzeb, Muhammad Shah and Shah Alam II., found in Saugor district.

Director, Zoological Survey of India, Calcutta.—
Collection of named insects.

D'Rozn, Mr. Edward.—
Skin of Nilghiri langur (*Pithecus johni*), Ambasamudram, Tinnevelly.
Skin and skull of king cobra (*Naia bungarus*), Ambasamudram, Tinnevelly.

Fernandez, Mr. E. W.—
Spider, Chittoor.

Government of Bengal, General Department.—
Three rupees of Shah Jahan, found in Jessore district.

Government of India, Army Department.—
War work badge.

Hefferman, Lieut.-Col. H. W., Ambala.—
Two peons' badges.

Muhammad Madarsa Sahib, Mr. A.—
Nine pre-historic pottery found in Tellar, North Arcot district.

Pentland, Lord, London.—
A bullet extracted from the body of a wounded soldier.

Raghavan, B.A., Mr. M. D.—
Beetle (*Batocera rubra*), Madras.
Honeycomb of the small Indian honey-bee (*Apis florea*), Madras.
Live scorpion (*Palmanœus swammerdami*), Madras.
Spider (*Peucetia viridana*), Madras.
Trap-door spider (*Sason sp.*), Madras.
Young scorpion (*Buthus tamulus*), Madras.

Secretary, Bihar and Orissa Coin Committee, Patna Museum, Patna.—
One rupee of Shah Alam II., found in Champaron district.

Secretary, Bombay Branch, Royal Asiatic Society.—
One rupee of Akbar, found in Halol district.

Secretary to Government, Public Works Department, Madras.—
Cannon balls found during the excavation of the new Legislative Council Chamber, Madras.

Stoney, Mr. R. F.—
Cotton teal (*Nettopus coromandelianus*), white variety, Singaperumalkoil, Chingleput district.

Appendix B.

Classified list of expenditure of the Government Museum and Connemara Public Library during the year 1920-21.

	Actuals, 1920-21.	Revised estimate, 1920-21.
	Rs.	Rs.
Salaries—		
Superintendent and Principal Librarian	7,960	7,960
Permanent establishment, Government Museum—		
Personal Assistant, Archæological Assistant, Botanical Assistant, Zoological Assistant, Head Clerk and Cashkeeper, second, third, fourth, fifth clerks, senior and second Taxidermists, Duffadar and 34 peons—46 persons	12,495	15,500
Permanent establishment, Connemara Public Library—		
Sub-Librarian, four attendants and three peons—eight persons...	2,865	...
Total, Establishment ...	15,360	15,500
Allowances—		
Travelling allowance	782	800
Local allowance for high prices	4,729	4,726
Total ...	5,511	5,526
Contingencies—		
Cost of specimens purchased on tour and objects of interest and coin purchased at headquarters and charges for feeding live animals	1,210	2,066
Cost of books and publications	3,285	3,000
Rents, rates and taxes	6,336	6,336
Pay of menials	1,593	1,593
Other contingencies	7,943	8,915
Total Contingencies ...	20,373	21,910
Grand Total ...	49,204	50,896

Order—No. 1051, Law (Education), dated 18th July 1921.

Recorded.

2. The thanks of the Government are due to all who made donations to the Museum during the year.

(By order of the Government, Ministry of Education)

R. Ramachandra Rao,
Secretary to Government.

To the Superintendent, Government Museum.
" Director of Public Instruction.
" Law (General) Department.
" Revenue Department.
" Public Works Department.
" Accountant-General,
" Director-General of Archæology (with C.L.).
Editors' Table.

Government of Madras

LAW (EDUCATION) DEPARTMENT

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

G.O. No. 1055, 31st July 1923

Museum—Government—Connemara Public Library—Report for 1922-23—Recorded.

READ—the following paper :—

Letter from E. BARNES, Esq., B.Sc., Acting Superintendent, Government Museum, to the Secretary to Government, Law (Education) Department, dated Madras, the 6th/8th July 1923, No. 604-1.

I have the honour to forward herewith the administration report of the Government Museum and the Connemara Public Library for the year 1922–23, and to request that I may be supplied with 150 copies for distribution to other museums.

ENCLOSURE

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM AND THE CONNEMARA PUBLIC LIBRARY FOR 1922–23.

Dr. F. H. Gravely was in charge during the whole year. He was on casual leave from the 17th to 26th February, during which period the Personal Assistant carried on the duties of the office. The latter also acted during the period of the tours to Kambakkam Hills and Krusadai Island from the 27th August to 1st September and 15th to 29th September, respectively.

The Museum was closed to the public by order of Government on the 21st September 1922 on account of the solar eclipse.

2. *Visitors.*—A statement of the number of visitors recorded is given below :—

	1921–22.	1922–23.
Total number of visitors—Old building	310,931	373,424
Total number of visitors—New building	295,353	312,308
Largest number on a single day—Old building ...	55,745	83,290
Largest number on a single day—New building ...	51,440	82,309
Total number on Sundays—Old building	49,207	99,190
Total number on Sundays—New building	48,631	78,658
Total number on Gosha days	5,135	6,904

As usual, the largest number of visitors was on the Kannupongal Day, when even more attended than in previous years. Excluding the festival occasions of Kannupongal and Dwadasi, the average number of visitors recorded for the two buildings was 212,632 against 226,825 in the preceding year and 242,464 the average for the last five years.

3. *Buildings and grounds.*—The re-arrangement of the Invertebrate and Fish Galleries has been so far completed that it was possible to re-open them to the public in December last. As the walls of the New Building were badly stained by bats, their doorways were provided with wire-netting, which it is hoped will prevent this in future.

Special work was undertaken to improve the drainage of the compound and new drainage channels were cut with most satisfactory results. The dark room and photographic apparatus have been repaired and are being put into use again. The accommodation available for the reserve zoological collections has been greatly increased by the receipt of twenty glass fronted teakwood almirahs from the Secretariat, sent under the orders of the Director of Office Systems, as they were no longer required by him. These are a most welcome addition.

BOMBAY BRANCH OF THE Royal Asiatic Society.

4. *Museum Theatre.*—The theatre was in even greater demand than in previous years and was used on 38 occasions, excluding rehearsals, 15 of these being performances of the Madras Dramatic Society, three concerts of the Madras Musical Association, and five special University Lectures by Dr. Woodburne.

5. *Establishment.*—During the year under review the Sub-Librarian, M.R.Ry. T. G. Aravamudhan, was given one year's leave, and M.R.Ry. O. Krishnan was appointed to act in his place from the 24th July 1922. N. Samuel was likewise appointed to act for the Second Taxidermist, J. C. Fernandez, from 1st November 1922. There have been no other changes in the staff, who worked well throughout.

6. *Tours.*—The Superintendent made two tours during the year, one to Kambakkam Hills, Chingleput District, in August and the other (accompanied by the Junior Taxidermist) to Krusadai Island, Pamban, leaving on the 15th September and returning to headquarters on the 29th September. Special thanks are due to Mr. J. Hornell, F.L.S., the Director of Fisheries for placing the bungalow on Krusadai Island and motor boat "Pearl" at his disposal. Many specimens were collected for the Museum on both occasions.

7. *Demonstrations.*—Three sets of two demonstrations each were given by the Superintendent between November and February to teachers who had not attended during the previous three years, a total of 54 teachers attending. Of these, 16 attended both demonstrations and 38 one only.

The demonstrations to students began in December as usual and continued till April. There were 22 demonstrations in the year and, out of a total number of 1,528 pupils entered in the programme, 1,142 attended.

8. *Linguistic Survey.*—The work connected with the recording of languages by gramophone was continued. Transliterations and translations of the passages recorded were obtained and are now being printed at the Government Press.

9. *Art and Archæology.*—The Curator, Provincial Museum, Lucknow, who was deputed by the Government of the United Provinces to make a selection of the duplicate specimens that were in the Museum, was here in August last and three Amaravati sculptures, two brass articles, 17 wood carvings and two paintings were selected and handed over to him. Duplicate specimens of six Amaravati sculptures, 14 wood carvings, one stone image of Alvar, one clay image of Kali, four pieces of ivory work and six paintings were presented to the State Museum, Pudukottai, through the Political Agent.

The whole collection of wood carvings and paintings that have been acquired from time to time were carefully gone through and a set of the best specimens of each type selected for exhibition in the gallery. The wood-carvings have been arranged in the New Building and the paintings in the entrance hall of the Old Building. Duplicates have been distributed to the Provincial Museum, Lucknow, and the State Museum, Pudukkottai, as noted above.

The special preservation of the South Indian bronzes had to be postponed for want of funds, but it is to be taken in hand during the current year.

The most noteworthy additions to this section are the following :—

(1) A stone image of Parvati found in Thondur Village, South Arcot District, and acquired under the provisions of the Treasure Trove Act.

(2) A copper image of Hanuman found in the village of Vangallur, Nellore District, and acquired under the provisions of the Treasure Trove Act.

(3) A set of four copper-plates having holes to enable them to be strung on a ring, purchased from Mr. G. Ramdas Pantulu, Headmaster, Board High School, Jeypore. They record that Saktivarman, the Lord of Kalinga, gave the village of Rakaluva to a Brahman named Kumarasarman on the full-moon day in the month of Vaisakha in the 13th year of his reign.

(4) A set of three copper-plates strung on a ring, the ends of which are secured by means of a seal bearing on the countersunk surface a legend (much worn) of which the last line has been read as Ra(jo)niavarmasya. These plates were purchased from Mr. G. Ramdas, Headmaster, Board High School, Jeypore. They record that Umavarman, the Lord of Kalinga, gave the village of Brihatpushta to a Brahman named Haridatta in the 30th year of his reign.

(5) A set of three copper plates strung on a ring, the ends of which are secured by means of a small mass of copper on which is impressed the figure of a conch. Purchased from the widow of the late Mr. T. G. Gopinatha Rao. They record that the Lord of Chikura gave the village of Pulaka to a Brahman named Harisarman in the 6th year of his reign.

(6) A set of copper-plates strung on a ring, the ends of which are secured by means of a seal which bears in relief the emblems of a boar, a chauri and some indistinct emblems. This set was purchased from Boyapati Bulleyya, Singarajupalem, Kistna District. It records that the Eastern Chalukyan King Raja Raja II, son of Kullottunga Chola I, gave twelve villages to his close friend and subordinate Mammadi Bhima as governorship in respect of 1,000 villages comprising the Vengipuravishaya. It was made on the 27th July 1076 A.D. These plates give the date of the coronation of the king.

(7) A set of three big copper-plates presented by Mr. Hari Rao of Kumbakonam. They record that Vijiaraghava, one of the Nayak Kings of Tanjore, gave the village of Alamelumangapuram as agrahara to Vaishnava Brahmans who were well versed in the Vedas. It is dated Mina Paurnima in the year Manmatha, saka 1578 (A. D. 1656).

(8) A small copper-plate in Oriya characters purchased locally. It records the grant of a plot of land to a Brahman by Ramachandra, King of Nandapura.

(9) A set of five copper-plates strung on a ring, the ends of which are secured by means of a seal bearing on the surface the legend 'Tyagadhenu' between a crescent and a lotus. Purchased from P. Subramanya Sastri, National College, Masulipatam. They record that the Eastern Chalukyan King, Indravarman, gave the village of Kondanaguru to a Brahman named Chendisarman. The discovery of these plates has proved beyond doubt that this King, Indravarman, did actually rule, a point not definitely settled before.

10. *Numismatics.*—The following coins were acquired under the Treasure Trove Act:—

(1) Forty-five gold South Indian fanams found in the village of Perukkaranai, Chingleput District.

(2) Three varahas bearing the legend 'Rayasamu', one gold varaha of the Kakatiya King Ganapati and twelve gold fanams of the Chola King Kolottunga I, found in the village of Kavaliyadavalli, Nellore District.

(3) Five gold South Indian fanams found in the village of Kodaithandalam, Chingleput District.

(4) Eighteen French Arcot rupees struck in the name of Alamgir Badsha, two rupees struck in the name of Ahmadshah and thirty, one-eighth rupees struck at Pondicherry by the French East India Company.

(5) Twelve fanams of Rama Raja the second son of the famous Sivaji, the founder of the Maharatta Empire, found in the village of Lachivakkam, Chingleput District.

(6) Fifty-one copper coins of Kalam Ullah Shah bin Ahmad Shah, eighteenth King of the Bhamini Dynasty, who ruled between 1525–1527 A.D. and one coin of Farrukh Siyar, found in the village of Sakhinetipalli, Gōdāvari District.

(7) Three hundred and four lead coins which were issued by the Andhra kings who ruled till the 2nd century A.D., found in the village of Mandur, Guntūr District. These were cleaned and treated for preservation by the Archæological Chemist, Dehra Dun.

The Museum is indebted to the Governments of the Central Provinces and United Provinces and to the Bombay Branch of the Royal Asiatic Society for a total of seven coins presented to it during the year.

11. *Botany.*—Much of the work done during the course of the year was a continuation of the work begun last year and the year before. Over one hundred and fifty plants were added to the Herbarium illustrative of the flora of Madras City and surroundings, and work in this direction is still being continued. A popular guide to the identification of the flowering plants found within this area is under preparation and drawings of the commoner plants are being made to serve as illustrations.

Permission has been accorded to Dr. Bribal Sahni of Lucknow University, who has obtained the loan of four specimens of fossil wood, to prepare sections and publish descriptions of them along with others that he is studying.

Our thanks are due to the Keeper of the Herbarium, Royal Botanic Gardens, Kew, for identifying for us the newly introduced weed *Gomphrena decumbens*, Jacq., which is a native of Central America and the West Indies and has established itself in this city and is gradually spreading.

12. *Zoology.*—A large number of interesting invertebrate specimens have been added both to the gallery and to the reserve collection as a result of tours to Kambakkam Hills and Krusadai Island. The constant collecting of specimens from the city and suburbs has been continued.

The re-arrangement of both the Fish and the Invertebrate Galleries was continued and the galleries were opened to the public. Much, however, still remains to be done, especially in the Invertebrate Gallery. The Reptile Gallery was also re-arranged, the filling up of four large doorways providing ample wall space for the proper exhibition of the specimens, which were so cramped as to be only visible with difficulty before. The rearrangement of the mammals and provision of suitable cases for them has been taken in hand and it is hoped that the gallery may be opened to the public in the course of the current official year. The Reptile Gallery has been provided with labels indicating the system of classification adopted and similar labels are being placed in the other galleries as rapidly as they can be prepared.

The Museum is much indebted to Drs. Annandale and Horn and to Messrs. Andrews and Mathai for naming specimens, and to the Madras Fisheries Department for a number of fishes and marine invertebrates presented.

13. *Valuable stock.*—The necessary inventory has been maintained and duly checked.

14. *Connemara Public Library.*—The Library was closed to the public on Thursday, the 21st September 1922, on account of the solar eclipse.

During the year the number of visitors rose to 26,020 from 23,118 in the previous year.

	1922-23.	1921-22.
Largest number of readers in a week day	160	166
Smallest do. do.	32	32
Largest number of visitors on a Sunday	163	171
Smallest do. do.	74	47

The steady increase in the number of visitors successively for the past five years shows the growing popularity of the Library and the increasing appreciation of its contents by the reading public. The total number of volumes consulted this year was 39,256, including 2,197 volumes issued for Museum work or on loan to Government offices, as against 41,279 volumes consulted in the previous year. This fall, in spite of the increase in the number of visitors, may be attributed to the growing elimination of unnecessary references consequent upon the improved methods of issuing books, as indicated in the two previous reports.

During this year 351 standard works in 427 volumes were added to the Library. Of these, 207 (239 volumes) were purchased and 144 (188 volumes) received as gifts or exchanges. Among the latter, particular mention may be made of the 77 volumes received from the Registrar of the University of Calcutta and the 33 volumes of standard works, excluding the 127 volumes of serial publications, presented by the Chief Secretariat Library as a result of its re-organization.

In view of the policy of economy and retrenchment, Government, in G.O. No. 837, Law (Education), dated the 15th July 1922, found it necessary to discontinue eleven of the periodicals supplied to the Library, but out of the amount so saved they sanctioned the supply of three more important ones. The conversion of most of the Parlimentary Papers into Stationery Office Publications also told adversely on the Library. Since the Stationery Office Publications have now to be purchased and Government cannot find sufficient funds to have both the Secretariat and Connemara Libraries supplied with a complete set, the Connemara Public Library has had to be satisfied with Parliamentary Papers on six specified subjects, all relating to Indian affairs. These papers are being supplied to the Library as they are issued.

The enlarging and remodelling of the counter was completed and the counter is now in use again. The card index of recent additions has also been completed and brought up to date. The provision of additional shelving for the storage of books, which was postponed in the past for want of funds, has been sanctioned. The University of Madras has supplied the necessary funds in the special interest of the University Library which is housed in the Connemara Library Building. The shelving arrangements are expected to be completed within the course of a year and will afford great relief to both the libraries.

Particular attention was devoted this year to the accumulated mass of serial publications. A manuscript catalogue of all the scientific periodicals in the Library arranged alphabetically according to their places of publication was prepared. All the available numbers of each periodical have been noted and missing volumes or numbers are being ordered. The cataloguing, on a similar basis, of Government publications and periodicals other than scientific, and an attempt at making them complete, are in progress. The card indexing system adopted for standard works has been extended to current periodicals.

The Library is at present greatly in need of an up-to-date Subject Index Catalogue of its standard works. But the preparation of this catalogue cannot possibly be undertaken by the existing staff, which has its hands more than full with current work. Indeed, the paucity of the present staff is such that the necessary amount of supervision required in a public library such as this cannot be adequately exercised, with the result that the library is sometimes put to the necessity of purchasing duplicate copies, often very costly, of books and periodicals mutilated by the readers and rendered useless for reference. Owing to recent bad instances of this nature, it has been found necessary to modify the practice of keeping current periodicals for general reference on the table.

15. *University Library.*—The total number of readers during the year under report rose to 14,467 as against 11,552 in 1921-22 and 21,491 volumes were consulted as against 24,044 in the previous year.

The privilege of taking books on loan was enjoyed by 310 University readers as against 235 in 1921-22 and 6,649 volumes were taken out as against 5,832 volumes in the previous year.

Appendix A.

Donations—1922-23.

Director of Fisheries, Madras—
Protozoa (*Foraminifera*), Tuticorin.
Cœlenterates—*Aquorea sp.*, *Discosoma sp.*, *Solenocaulon tortuosum*, *Cavernularia obesa*, *Subergorgia sp.*, *Heteropsammia sp.*, *and Heterocyathus sp.*
Crustaceans—*Ostracods*, *Zoea and Nauplius* larvae.
Sea-urchin (*Diadema saxatile*), Ennur.
Polychaets—*Eunice sp.*, and tube of *Eunice tubifex.*
Arrow-worms (*Sagitta sp.*), Ennur.
Tunicate (*Rhabdocynthia pallida*), Tuticorin.

Drake, Mrs. A.—
Spider (*Psechrid*), from Darjeeling District.

Fischer, Mr. C.—
Whip scorpion (*Thelyphonid*), North Arcot; spiders from Nellore and Cuddapah; spiders and insects from Chittoor.

Hari Rao, Mr. R.—
A set of copper plates.

Ramachandran, B.A., Mr. Manjeri,
Flying lizards (*Draco dussumieri*), Calicut.

Singaram, Mr. J.
Spiders—*Hippasa sp.*, *Acantheis sp.*, and an attid; grasshopper (*Aularches miliaris*) and beetles, from Yercaud.

Ware, Mr. F.—
Eastern Baillon's crake (*Porzana pusilla pusilla*) (Pll).

Wolley, Mr. P. W.—
Two inscribed copper plates (palm-leaf size), together with two manuscript oudgen leaves.

Appendix B.

Classified list of expenditure of the Government Museum and Connemara Public Library during the year 1922-23.

	Actuals. 1922-23.	Revised estimate. 1922-23.
	Rs.	Rs.
Salaries—		
Superintendent and Principal Librarian	9,050	9,050
Permanent establishment, Government Museum—		
Personal Assistant, Archæological Assistant, Botanical Assistant, Zoological Assistant, Head Clerk and Cash-Keeper, Second, Third, Fourth, Fifth Clerks, Senior and Second Taxidermists, Duffadar and 36 peons—48 persons	19,645	23,350
Permanent establishment, Connemara Public Library—		
Sub-Librarian, four Attendants and three Peons—eight persons	3,699	
Total, Establishment ...	32,394	32,400
Allowances—		
Travelling allowance	392	600
Contingencies—		
Cost of specimens purchased on tour and objects of interest and coin purchased at headquarters ...	1,309	1,320
Cost of books and publications	3,000	3,000
Rents, rates and taxes	6,336	6,336
Pay of menials	1,420	1,427
Other contingencies	8,844	7,156
Total, Contingencies ...	21,301	19,839
Grand total ...	53,695	52,239

Order—No. 1055, Law (Education), dated 31st July 1923.

Recorded.

(By order of the Government, Ministry of Education)

R. Ramachandra Rao,
Secretary to Government.

To the Superintendent, Government Museum.
" Director of Public Instruction.
" Law (General) Department.
" Development Department.
" Accountant-General.
" Director-General of Archæology (with C. L.).
" Registrar, University of Madras.
Editors' Table.

Government of Madras

LAW (EDUCATION) DEPARTMENT

G.O. No. 1162, 16th July 1924

Museum—Government—Connemara Public Library—Report for 1923-24—Recorded

READ—the following paper :—

Letter from F. H. GRAVELY, Esq., D.SC., Superintendent, Government Museum, to the Secretary to Government, Law (Education) Department, No. 812-1, dated Madras, the 5th July 1924.

I have the honour to forward herewith the administration report of the Government Museum and the Connemara Public Library for the year 1923-24, and to request that I may be supplied with 150 copies for distribution to other museums.

ENCLOSURE

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM AND THE CONNEMARA PUBLIC LIBRARY FOR 1923-24.

Dr. F. H. Gravely was on leave on average pay from the 4th April to 31st October 1923 and handed over charge to the Personal Assistant on the 28th March, prefixing the Easter holidays from the 29th March to 3rd April 1923. Mr. Edward Barnes, B.SC., Professor of Chemistry, Madras Christian College, who was appointed to act during the vacancy, took over charge with effect from the 4th April, and remained in charge till Dr. Gravely returned to duty on the 1st November 1923. Mr. Barnes availed himself of casual leave from the 1st to the 10th June 1923, during which period the Personal Assistant was in charge.

The Museum was closed to the public on the forenoon of the 8th December 1923, on account of the arrival of His Excellency the Viceroy in Madras.

2. *Visitors.*—A statement of visitors recorded is given below : —

	1922-23.	1923-24.
Total number of visitors—Old building	373,424	409,592
Do. New building	312,308	330,272
Largest number on a single day—Old building ...	83,290	95,813
Do. New building ...	82,309	83,933
Total number on Sundays—Old building	99,190	51,127
Do. New building	78,658	42,655
Total number on Gosha days	6,904	5,408

The Dwadesi (20th December 1923) and Kannupongal (16th January 1924) festivals attracted large crowds of visitors, the attendance being as follows :—

	1922-23.	1923-24.
Dwadesi—Old building	54,202	63,360
Do. New building	40,668	41,293
Kannupongal—Old building	83,290	95,813
Do. New building	82,309	83,933

Excluding these festival days the average number of visitors during the year is 227,732 against 212,632 in the preceding year, and 235,488, the average for the last five years.

3. *Buildings and grounds.*—Special repairs were carried out to the roofs of the theatre, new building and the library to prevent leakage, particular attention being paid to the roofs over the idols gallery which has recently been fitted with cases.

Since the water pandal room was broken into by burglars in November 1922, the outer doors of the water pandal, office block, stuffing room and the dark room have been provided with an improved pattern of hooks and staples, making them more secure.

To provide additional accommodation for the storage of books of the University and the Connemara Public Libraries, one of the rooms of the new building formerly used for anthropometric work was fitted up with steel shelving.

4. *Museum Theatre.*—The theatre continued to be in great demand and was used on 31 occasions, excluding rehearsals, eight of these being performances of the Madras Dramatic Society and three concerts of the Madras Musical Association. The Historical Records Commission held its sittings in the theatre on the 10th and 11th January 1924.

5. *Establishment.*—M.R.Ry. T. G. Aravamuthan, the Sub-Librarian of the Connemara Public Library who was on one year's leave from the 24th July 1922, resigned with effect from the 24th July 1923. During the year the Government sanctioned the appointment of a temporary Archæological Chemist for six months to attend to the preservation of the collection of bronzes, and appointed Bhai Ram Singh Ahuja to the post with effect from the 1st April 1924. E. M. Joseph, one of the attendants of the Library, left on appointment as touring clerk to the Lumbering Engineer, Forest Department. N. A. Raghupathi Nayudu was appointed in his place. There have been no other changes in the staff, who worked well during the year.

6. *Tours.*—During the period that Mr. Barnes was in charge he went on three collecting tours—the first to Kambakkam Hill, Chingleput, from the 6th to 10th April, the second to the Dhoni forests in the Western Ghats from the 16th to 19th May, and the third to Horsleykonda in the Chittoor district from the 10th to the 19th September 1923. The Botanical Assistant accompanied him to Dhoni, and the Botanical and Zoological Assistants to Horsleykonda. The Superintendent, with the Botanical and Zoological Assistants, attended on duty the Indian Science Congress meeting at Bangalore with the permission of the Government, from the 13th to 20th January 1924. The Personal Assistant carried on the duties of the office during the absence of the Superintendent on these occasions.

7. *Demonstrations.*—Three sets of two demonstrations each were given by the Superintendent between November and January to teachers, a total of 42 teachers attending, of whom 25 attended both and 17 one only.

The demonstrations to students were held from October to February by the Assistants. Thirty-two demonstrations were given and out of a total of 2,400 entered in the programme, 1,845 attended.

8. *Linguistic Survey.*—The printing of transliterations and translations of passages recorded by gramophone has progressed well, though it has taken more time than was anticipated, on account of the importance of the use of the scientific system of transliteration adopted in Grierson's Linguistic Survey of India, relating to Dravidian languages, a system with which many of those concerned in the work were apparently unfamiliar.

9. *Valuable stock.*—The necessary inventory of all valuable stock consisting of tools, instruments, etc., has been maintained and duly checked. Articles of ordinary furniture have not hitherto been included in this inventory. A separate inventory of all furniture is now being prepared as recommended by the special officer for contingencies, who inspected this office from the 6th to the 13th February 1924.

10. *Archæology and Art.*—Bhai Ram Singh Ahuja, B.A., who was trained under the Archæological Chemist in India was appointed for six months for the preservation of bronzes and has taken charge of his office on 1st April 1924. The special cases to accommodate the bronzes have been fitted in the galleries.

Government have, in their order G.O. No. 1731, Law (Education) Department, dated 13th December 1923, been pleased to permit the Archæological Assistant to take manuscripts on loan from the Government Oriental Manuscripts Library.

Under orders contained in G.O. No. 3171, Law (General) Department, dated 18th December 1922, the images concerned in the Manjakkudi Treasure Trove case acquired in 1921 were returned to the villagers. The Krishna image concerned in Kattu Edayar Village Treasure Trove case which was ordered to be delivered to the villagers in G.O. No. 651, Public, dated 1st June 1912, was sent to the Collector of South Arcot, to be delivered to them as he reported that a suitable temple had been constructed to receive it.

The most noteworthy additions to this section are the following:—

(1) Three sculptures and one pillar bearing an inscription, dated Saka 1388 (A.D. 1466), regarding the construction of a Ganesa temple by a merchant named Vankayala Gangi Setti brought from Ellore, Kistna district, on the recommendation of the Superintendent, Archæological Survey, Southern Circle.

(2) Three inscribed slabs, two from Addanki, and one from Dharmavaram, Ongole taluk, sent by the Collector of Guntūr at the instance of the Assistant Archæological Superintendent for Epigraphy, Madras.

(3) Copper images of seated Parvati, Manikkavasagar, a Saivite Saint, a Dipa Lakshmi, Chandikesvara, Appar and Chandrasekhara found in the village of Vadakkuppoyyur, Tanjore district, and acquired under the provisions of the Treasure Trove Act.

(4) A stone image of Sri Devi found in Srivakkaramari village, South Arcot district, and acquired under the provisions of the Treasure Trove Act.

(5) Three small images of Krishna crawling as a child, and one image of Krishna as a baby lying on its back found in the village of Adanakkottai, Tanjore district, and acquired under the provisions of the Treasure Trove Act.

(6) Copper images of Subrahmanya, Sundaramurti, Chandrasekhara, Parvati, Pradoshanayaka, Sivakamasundari, Natesa, Chandikeswara, Rati, Somaskanda and a Saivite Saint found in the village of Panangattangudi, Tanjore district, and acquired under the provisions of the Treasure Trove Act.

The following copper-plate grants were added to the collection:—

(1) A set of three plates strung on a ring, the ends of which are soldered to the bottom of a circular seal. Purchased from Mr. T. Achyuta Rao, Deputy Inspector of Schools, Narasapur, Kistna district. The seal bears the figures of a boar and a cow with a dagger in front and surmounted by the emblems of the sun and moon. The plates record that Tikkachamupati, one of the sons of the minister of the Kakatiya King Ganapati, gave the village of Gravapadu to 50 Brahmans on the auspicious occasion of a solar eclipse in the month of Chaitra in the year Raudri Saka 1182 (A.D. 1260).

(2) A set of five plates strung on a ring, the ends of which are soldered to the bottom of a seal. Purchased from Mr. G. Amaraya of Ramanappalam. The seal bears the legend 'Sri Tribhuvanamkusa' along with the emblems of the sun, the moon, a star, two parasols, the Chola tiger, an ankusa, a lotus, a Swastika, the Chalukyan boar, chakra, sandals, drum, double conch, lamp-stands and some indistinct symbols. The plates record that Rajendra Choda, the Velanandu Chief, gave the village of Inangaru in Saka 1091 in the 23rd year of his reign (A.D. 1169). These plates are important as they give an account of the later Chalukyan kings who held sway in the Vengi country down to the time of Raja Raja II and of their subordinates the Velanandu Chiefs down to Rajendra Choda. Some plates are missing both at the beginning and the end.

(3) A set of three plates strung on a ring, the ends of which are fastened to the bottom of a seal, the impressions on which are much worn. Purchased from Mr. M. G. Ramdas, Headmaster, Board High School, Jeypore. They record that the Eastern Ganga King Indravarman gave the village of Bhukkukurachchheda to a Brahman on the full moon day in the month of Kartika in the 149th year of the reign of the Ganga line of Kings

(4) A set of five plates strung on a ring, the ends of which are attached to the bottom of a seal which bears the emblems of a boar, dagger, the sun and the moon. Purchased from Mr. Ramanujacharya, Harrington Road, Chetput. The plates record that the Vijayanagara king Venkatapati Devaraya gave the village of Murugamangalam alias Gopalasrisamudra to Sri Ramakrishna Josyar on the 7th tithi in the bright fortnight in the month of Magha in the year Paridhavi Saka 1534 (A.D. 1612).

(5) A set of five plates strung on a ring, the ends of which are secured by a seal the impressions on which are much worn. Purchased from Mr. P. V. Jagadisa Ayyar of the Madras Record Office. They record that in the 61st year of the reign of the Pallava King Ko Vijaya Nandivikrama Varman, 16 velis of land situated in the village of Nalgur were constituted into a new village Pattattalmangalam by name and were given to a number of Brahmans.

The metalware collection was augmented by several purchases during the year. A few specimens of Nepalese and Tibetan metalware were got from the Indian Museum, Calcutta, in exchange for four duplicates of bronzes. Two old paintings representing the old school of paintings by muchis in Cuddapah district were purchased.

11. *Numismatics.*—The following coins were acquired under the provisions of the Treasure Trove Act:—

(1) One Madras star pagoda struck by the East India Company found in the village of Permanallur, Chingleput district.

(2) Six rupees of the French East India Company struck with the name of Mughal Emperors, found in Wynad, Malabar taluk.

(3) Six gold mohars of Ala-ud-din, one of Muhammad-bin Tughlaq, found in the village of Vempenta, Kurnool district.

(4) Sixty-nine small gold fanams issued by Delhi Emperors found in the village of Allireddipalli, Cuddapah district.

(5) Two gold half varahas of the Vijayanagara King Devaraya and eight of Harihara found in the village of Pati in Cuddapah district.

(6) Thirty-seven gold fanams issued by Mughal Emperors found in the village of Prabhalavedu, Cuddapah district.

(7) Four silver coins of Raja Raja Chola found in the village of Darasuram, Tanjore district. One of these coins was sent to the Mint Master, Bombay, for being assayed and it was found to contain as follows:—

Gold	9·71
Silver	25·80
Copper	63·64
Lead	Traces.

(8) One varaha of the Vijayanagara King Pratapa Devaraya found in the village of Ayyanki, Kistna district.

(9) Thirty-three small gold South Indian fanams found in the village of Sengandhi, Tanjore district.

(10) Fifty gold Kali fanams found in the village of Rajavallipuram, Tinnevelly district.

One Ramatanka, two Venetian sequins and four South Indian fanams were received in exchange from Mr. S. T. Srinivasagopalachariar, Advocate, Madras.

To the Governments of the United Provinces, Central Provinces, the Curator, Central Museum, Lahore, the Bombay Branch of the Royal Asiatic Society, the Museum is indebted for forty-one coins presented to it in the course of the year.

12. *Botany.*—The tours to the Dhoni forests and to Horsleykonda resulted in the addition of many useful and interesting specimens. Excursions to places of botanical interest in the neighbourhood of the city were frequently made and a good number of plants were added to the herbarium. The Guide to the Flowering Plants of Madras under preparation has made considerable progress and it is hoped that it will be ready for the press in the course of the next official year. Line drawings of about one hundred additional plants have been made during the year in this connexion. The study of weeds introduced to the city of Madras was continued and a particularly recent addition was identified for us by Dr. Brühl as *Croton sparsiflorus*, Morung, a native of South America. This weed has appeared on the shore near the harbour but has not yet advanced inland. The work of changing old labels and replacing bad specimens was attended to as usual.

13. *Ethnology.*—The Botanical Assistant made some investigations on 'Teruvans' a little known immigrant caste of Malabar and read a paper on that subject at the meeting of the Indian Science Congress held at Bangalore.

14. *Zoology.*—As a result of the tours to the Dhoni forests and Horsleykonda, many specimens have been added to the reserve collection. As usual the collecting of local specimens has been continued.

The rearrangement of the mammal gallery is almost finished and it will be opened to the public very soon. The exhibits in the central room are being rearranged. Specimens were identified for enquirers from various parts of India and abroad.

Duplicate specimens of shells and corals were presented to the Sri Mahant's Hindu High School, Tirupati.

Facilities for working on scorpions and frogs were accorded to Messrs. C. C. Chandi and D. D. Daniel respectively and the former was able to sort and identify some of our unnamed material.

The Museum is much indebted to Drs. Annandale and Baini Prashad, Captain Fraser and Mr. Matthai for naming a number of specimens, to the British Museum for a collection of named spiders in exchange for others from here and to the Zoological Survey for several named insects, spiders and corals.

15. *Connemara Public Library.*—The Library was closed to the public on the forenoon of the 8th December 1923 on account of the visit to the city of His Excellency the Viceroy of India.

During the year the number of visitors rose to 28,988 from 26,020 in the previous year:—

	1923-24.	1922-23.
Largest number of readers in a week day	177	160
Smallest do. do.	22	32
Largest number of visitors on a Sunday	180	163
Smallest do. do.	74	74

The total number of volumes consulted this year was 39,881 including 1,795 volumes issued for Museum work or on loan to Government offices as against 39,265 volumes consulted in the previous year. As in the past years the steady increase in the number of visitors continued and the number of volumes consulted also rose though it did not reach the previous year's figure.

During this year 309 standard works in 350 volumes were added to the library. Of these 232 (268 volumes) were purchased and the remaining 77 (82 volumes) were received as gifts or exchanges.

In G.O. No. 1326, Law (Education) Department, dated the 19th September 1923, Government were pleased to sanction the supply to the library of two additional periodicals, viz., the Indian Review and the Visva-Bharati Quarterly. Both these journals are being largely used by the reading public.

The shelving arrangements in the new room sanctioned for the joint use of the Connemara and University libraries are practically complete, to the great relief of both the libraries. The card indexing system adopted for standard works was continued. Typed lists of current periodicals, Government publications and recent Parliamentary papers available in the Library, were prepared and placed on the counter to facilitate reference.

The seventh supplement to the Author Catalogue is in preparation and will be sent to press shortly.

16. *University library.*—The total number of readers during the year under report is 15,083 as against 14,467 in 1922-23 and 21,305 volumes were consulted as against 21,491 in the previous year.

The privilege of taking books on loan from library was enioyed by 261 University readers as against 262 in 1922-23 and 6,240 volumes were taken out as against 6,649 volumes in the previous year.

APPENDIX A.

Donations—1923-24.

Barnes, B.SC., Mr. E.—
Spiders, Myriapods, Insects and Molluscs of Hampi in Bellary, Cuddapah and Madras

Central Museum, Lahore—
One rupee of Aurangzeb, Mint, Lahore.

Corporation of Madras—
Malayan Tapir.

Dandapany Pillai, Mr. N.—
Spider (*Poecilotheria regalis*) from Salem.

Director of Industries, Central Provinces—
One rupee of Shajahan, Surat Mint.
Do. Patna Mint.
One rupee of Jahangir, Ahmedabad Mint.
One rupee of Aurangzeb, Surat Mint.
Do. Kambayat.
Two Puranas or Punch marked coins.
One rupee of Muhammad Shah.

Director of Zoological Survey of India, Calcutta—
Named Lycosids Indian and a collection of named Orthoptera and Termites from Barkuda Island.

Macfarlane, Rev. G. H.—Fossil Ammonite from Cuddapah.

APPENDIX A—*cont.*

Donations—1923-24—cont.

Mayuranathan, Mr. P. V.—
Spiders, Insects and Fishes of Chingleput.

Moses, Mr S. T.—
Crustacean (*Ligia sp.*) and Mollusc (*Atlanta sp.*) of Madras.

Royal Asiatic Society, Bombay Branch—
One varaha of Narasimha of Vijayanagara dynasty.
One varaha with a seated goddess.
Twelve rupees of Aurangzeb and Shajahan.
One coin of Humayun Shah; one of Muhammad-bin Humayun, two of Muhammad Shah II and one of Ahmed Shah I and one coin each of Bijapore pagoda, half pagoda of Vijayanagara Sadasiva Raya, half pagoda of Vijayanagara Krishna Raya, and a Viraraya fanam.

Sutherland, Rev. W. S.—
Worm (*Gordi idae.*) from Elk Falls, Kotagiri.

United Provinces Government—
Two coins of Vasudeva.
Three rupees of Aurangzeb and Shah Alam Bahadur.

Venkataseshayya, Mr. R. S.—
Shells (*Melania sp.*) of Cocanada and (*Vivipara bengalensis*) from Tirupati.

APPENDIX B.

Classified list of expenditure of the Government Museum and Connemara Public Library during the year 1923-24.

	Actuals. 1923-24.	Revised estimate. 1923-24.
	RS.	RS.
Salaries—		
Superintendent and Principal Librarian	5,831	5,800
Permanent establishment, Government Museum—		
Personal Assistant, Archæological Assistant, Botanical Assistant, Zoological Assistant, Head Clerk and Cash-keeper, Second, Third, Fourth, Fifth Clerks, Senior and Second Taxidermists, Duffadar and 36 peons—48 persons.	19,790	24,400
Permanent establishment, Connemara Public Library—		
Sub-Librarian, four Attendants and three Peons—eight persons	3,663	
Total, Establishment ...	29,284	30,200
Allowances—		
Travelling allowance	864	900
Contingencies—		
Cost of specimens purchased on tour and objects of interest and coin purchased at headquarters.	1,133	1,600
Cost of books and publications	3,000	3,000
Rents, rates and taxes	6,686	6,500
Pay of menials	1,438	1,400
Other contingencies	24,668	24,400
Total, Contingencies ...	37,789	37,800
Grand total ...	67,073	68,000

Order—No. 1162, Law (Education), dated 16th July 1924.

Recorded.

(By order of the Government, Ministry of Education)

V. T. Krishnama Achariyar,
Acting Secretary to Government.

To the Superintendent, Government Museum.
,, Director of Public Instruction.
,, Law (General) Department.
,, Development Department.
,, Accountant General.
,, Director-General of Archæology (with C.L.).
,, Public Works Department.
,, Registrar, University of Madras.
ditors Table.

Government of Madras

LAW (EDUCATION) DEPARTMENT

G.O. No. 1168, 7th July 1925

Museum—Government—Connemara Public Library—Report for 1924-25—Recorded.

READ—the following paper:—

Letter from F. H. GRAVELY, Esq., D.SC., Superintendent, Government Museum, to the Secretary to Government, Law (Education) Department, dated Madras, the 25th June 1925, No. 825-1/25.

I have the honour to forward herewith the administration report of the Government Museum and the Connemara Public Library for the year 1924-25, and to request that I may be supplied with 200 copies for distribution to other Museums and for record here.

ENCLOSURE.

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM AND THE CONNEMARA PUBLIC LIBRARY FOR 1924-25.

To be of any present value in the life of a community a museum must not only collect and preserve objects of interest for display, it must also, after submitting them to careful investigation, explain them both to its visitors from among the general public and to the specialists who are slowly but steadily pushing forward the bounds of different branches of knowledge.

During the year under review progress has been made under all heads, though at a rate, especially as regards investigation and explanation, which cannot be regarded as satisfactory.

Collection.—The principal acquisitions have been additional copper-plate grants, coins, bronzes, lamps and pictures in the Archæological section; and specimens from the Gulf of Manaar and the neighbourhood of Madras city in the Zoological and Botanical sections.

No work has been possible in the Ethnological or Geological sections. As regards Geology, local needs are probably sufficiently met by the Presidency College, and by the reference collection arranged by Dr. Murray Stuart in 1912 in our Geological gallery; for geological conditions here are such that geology is never likely to become a matter of much popular interest. It is, however, most regrettable that limitations of staff make it impossible for us to continue, without neglecting other work of still greater urgency, the ethnological investigations so admirably begun years ago by Mr. Thurston. Many ancient customs that have never yet been fully investigated or described are rapidly disappearing with the spread of modern influences; and if they are not recorded quickly they will be lost for ever.

Preservation.—Progress has been made in all sections with the better preservation of, and convenience of access to, the collections. In the Archæological Section the appointment of Bhai Ram Singh Ahuja as Special Archæological Chemist for a period of six months has commenced the stopping of the decay of our unique collection of south Indian bronzes. His reappointment for the year 1925-26, which we are glad to be able to record, should go a long way towards completing this work. Unfortunately the most valuable bronzes of all are so large that it is not practicable to deal with them in quite the same manner as the others; but proposals have been made, and it is hoped will subsequently be carried into effect, by which it is believed that they may also be saved from further deterioration.

In the Zoological Section a number of old almirahs received from the Secretariat have been repaired and fitted up, and the reference collections have been arranged in them so that any specimens that are wanted can now, for the first time for many years, readily be found. In the Botanical Section a second herbarium case has been added to house the increasing collections.

Investigation.—The Archæological Assistant has been chiefly occupied in studying our collection of bronzes, copper plate inscriptions and coins sent in under the Treasure Trove Act. He has also made further studies of some of the coins received in previous years. These studies, the results of which are appearing in the Numismatic Supplement to the Journal of the Asiatic Society of Bengal, the Indian Antiquary and Epigraphia Indica, have brought to light a new dynasty of Eruvas, a new king and a new Moghul mint. They have also shown that Chola Kings had mints at Kanchi and Nellore and have helped to elucidate the history of Todar Mull, who was the commander-in-chief of Sadat-ullah-Khan, Nawab of Arcot, and who played an important part in shaping the fortunes of the Hon. the East India Company in the early years of the 18th century.

In the Zoological Section I have been investigating the littoral fauna of Krusadai Island in the Gulf of Manaar. As a result of resolutions passed at the 1924 meeting of the Indian Science Congress, the University of Madras are arranging with the Fisheries Department to which the island belongs to establish upon it a Marine Biological Station where students can go to study marine organisms under natural conditions much more favourable than are to be found in Madras. A need has therefore arisen for a general introduction to the littoral fauna of the island, such as will enable a student to put himself in touch with it, when he gets there, with as little delay as possible. This is work which in some respects the Museum is in a better position to do than either the University or Colleges with their preoccupation with examinations and teaching, or the Fisheries Department with its large amount of administrative work. The Superintendent therefore visited the island with Dr. Sundara Raj, Prof. Parthasarathi Ayyangar and others in April 1924 and aided by Dr. Sundara Raj and others is still working on the Zoological collections then made. Prof. Parthasarathi Ayyangar is dealing with the Botanical collections. Though originally taken up in the interests of the University, this work is proving extremely valuable to the Zoological Section of the Museum, providing as it will the nucleus of a named collection in many different groups.

The Museum is much indebted to Drs. Prasad and Roewer, Messrs. Arrow, Jansen, Matthai, Ochs and Winkworth and others for naming a number of Zoological specimens and to the Zoological Survey for a collection of named insects.

A research student of the Madras University has been working in the Museum under my supervision on the life histories of insects.

The Botanical Assistant visited Krusadai Island with me and was able to collect a large number of different marine algæ, which Prof. Parthasarathi Ayyangar has been helping to name. The main work of the Botanical Section has, however, been the continuation of the study of the local flora to which a popular introduction is badly needed. The plates for this have now been completed, and most have been printed off. But work on the text has not progressed as rapidly as had been hoped.

Our thanks are due to the Government Lecturing and Systematic Botanist, Agricultural College and Research Institute, Coimbatore, for identifying some of our specimens for us.

The study of weeds recently introduced into the city and neighbourhood of Madras is being continued and the appearance of the tropical American weed *Alternanthera echinata* has been noted.

Exposition.—Works published or in progress on coins, bronzes, the littoral fauna of Krusadai Island and the flora of Madras city and its immediate neighbourhood have already been referred to. Improvements suggested by Mr. F. W. Richards, I.C.S., have been introduced into the register of finds of treasure trove coins and the information contained in this register for the year under review is printed in Appendix III to this report.

As regards the galleries little progress has been possible except in the Zoological Section. Labels explanatory of the classification of the groups Protozoa, Sponges, and Cœlenterates, and of the positions in the animal kingdom of the specimens exhibited have been prepared and printed and will be placed in the gallery to which they refer as soon as they have been framed. Without such explanation the exhibits can have little educational value and it is intended to complete them as quickly as possible.

The arrangement of the new Mammal Gallery has been completed and the room opened to the public. The removal of most of the skeletons to this room has made possible improvements in the congested central room and these have been taken in hand.

In the Archæological Gallery two vertical pillars with cross bars from the railing that surrounded the Amaravati stupa have been set up to show how such stupa railings, which were copies of wooden models, were constructed in a manner fitted for working in wood rather than in stone.

Demonstrations.—As the system of giving demonstrations to school children was proving unsatisfactory in many respects, it was decided in consultation with the District Educational Officer, Madras, not to hold them during the year, except by special arrangement in the case of such of the schools as specialize in any of the Natural Science subjects. In other schools the teachers who know the children individually and understand their needs and abilities can, if suitably instructed, interpret the exhibits to them better than the Museum staff can hope to do. Instead of demonstrations to school children it was therefore arranged to give more thorough demonstrations to teachers so that the classes could be brought by teachers who had attended the demonstrations. Four sets of teachers of three batches each were conducted round the Museum by the Assistants and myself, each set receiving demonstrations in the Archæological, Botanical and Zoological sections, a total number of 119 teachers attending. Unfortunately some of these failed to attend the complete set of three demonstrations.

Certain suggestions to teachers in Madras as to the possible uses of the Museum in their work were also drawn up by me with reference to the syllabus of studies adopted in the lower and higher forms of the high schools. The suggestions were printed as a leaflet by the Educational department and the District Educational Officer states that copies were circulated with the approval of the Director of Public Instruction.

Linguistic Survey.—The transliterations of passages recorded by gramophone underwent further revision in the light of remarks made by the Hon. Diwan Bahadur L. D. Swamikannu Pillai, I.S.O., C.I.E., making them correspond to the standard transliteration in Grierson's Linguistic Survey relating to Dravidian languages. The printing of the passages is being expedited.

Numismatics.—The treasure trove coins acquired till the end of March 1924 were distributed to the several Provincial Museums and Darbars in accordance with G.O. No. 604, Public, dated 26th July 1907 and those that remained after distribution were advertised for sale and are being sold.

To the Governments of the United Provinces, Central Provinces, the Curator, Central Museum, Lahore and to the Bombay Branch of the Royal Asiatic Society, the Museum is indebted for fifty-nine coins presented to it in the course of the year.

Two South Indian fanams from Mr. Srinivasa Gopalachariyar and one Padmatanka from the Curator, Hyderabad Museum, were obtained in exchange.

Rupees of Jehander Shah, Farrukhsiyar, Rafiuddarat, Shah Jahan II, Muhammad Shah, Ahmad Shah, Alamgir, Shah Jahan III, and Shah Alan II and copper coins of Muhammad Shah—in all 29 coins—were received from the Director-General of Archæology to be kept in the Museum collection.

An unfortunate loss of twelve gold coins occurred during the year. Twenty coins were sent to the address of Miss L. M. Anstey, Secretary to Sir Richard Temple, for preparation of plates to illustrate an article by the Archæological Assistant in the Indian Antiquary. The coins were returned through Mr. J. Allan, Keeper of the Coins, British Museum, London, but only eight coins were received here. It was learned on inquiry that the parcel was sent registered and insured against all risks in transit through Messrs. Spink & Sons. As the contents were reported intact when they left the British Museum it was presumed that the parcel must have been opened enroute. Investigations were at once instituted, but as the final report has only just been received from Mr. Allan, the matter could not be reported to Government before this. He states that being quite satisfied that the missing coins had disappeared in transit to India he put the matter in the hands of the

underwriters who made the necessary enquiries and when they were satisfied that the coins had been stolen in transit paid him £8-18-3, the proportionate insurance value of the portion lost, less brokerage. A cheque for the amount has been received from him in settlement of the claim.

Details of all treasure trove finds of coins during 1924-25 throughout the Madras Presidency will be found in Appendix III.

Tours.—The Superintendent went on a tour to Krusadai Island from the 23rd April to 9th May 1924 accompanied by the Botanical Assistant. He also attended on duty the meetings of the Indian Science Congress at Benares leaving here on the 9th January 1925 and returning on the 4th February after a halt of a fortnight in Calcutta attending to the identification of unnamed invertebrates. The Personal Assistant carried on the duties of the office during the absence of the Superintendent.

Visitors.—A statement of visitors recorded is given below:—

	1923-24.	1924-25.
Total number of visitors, Old Building	409,592	416,891
Do. New Building	330,272	347,890
Do. on Sundays, Old Building.	51,127	60,175
Do. on Sundays, New Building.	42,655	44,683
Do. on Gosha days	5,408	4,085

The Dwadesi (6th January 1925) and the Kannupongal (15th January 1925) festivals attracted crowds of visitors as usual, the attendance being as follows:—

	1923-24.	1924-25.
Dwadesi—Old Building	63,360	62,137
Do. New Building	41,293	63,367
Kannupongal—Old Building	95,813	90,964
Do. New Building	83,933	78,294

Excluding these festival days the total number of visitors during the year was 235,009 against 227,732 in the preceding year and 240,485, the average of the last five years.

Mr. James McKearn, J.P., Crown Trustee of the Australian Museum, Sydney, visited the Museum on the 24th February 1925.

Connemara Public Library.—During the year the number of visitors rose to 30,696 from 28,988 in the previous year:—

	1924-25.	1923-24.
Largest number of readers in a week day	177	177
Smallest do. do.	21	22
Largest number of visitors on a Sunday	208	180
Smallest do. do.	89	74

The total number of volumes consulted this year was 33,217 including 1,999 volumes issued for Museum work or on loan to Government offices as against 39,881 volumes consulted in the previous year. The steady increase in the number of visitors noted in past years continues.

During the year 318 standard works in 385 volumes or parts were added to the Library. Of these 259 (in 322 volumes or parts) were purchased and the remaining 59 (in 63 volumes) were received as gifts or exchanges.

In view of the discontinuance from 1st April 1925 of the free supply of the priced publications of the Government of India the list of Government of India publications now supplied was scrutinized and provision made in the budget estimate for the purchase of such as have been deemed necessary. In pursuance of G.O. No. 678, Finance, dated the 13th September 1924 and of G.O. No. 8, Finance, dated the 6th January 1925 which did away with the intervention of the Superintendent of Stationery in the matter of the supply of the periodicals and newspapers published in India and of foreign periodicals respectively, the budget estimate of the Library had to be enhanced to the extent of the price of those publications. The contract entered into by Government with Messrs. F. P. Baker & Co., Ltd., London, for the supply of books and periodicals published out of India having expired on 31st December 1924 arrangements for their supply have been made by Government with Messrs. P. R. Rama Ayyar & Co., Madras. The Library is therefore obtaining such publications through the agency of this company.

A special committee appointed by the University Library to go into the question of the supply of scientific periodicals in Madras has recommended to this Library the acquisition of several important additional periodicals and the discontinuance of some others. These recommendations have in the main been accepted subject to Government approval and Government will be addressed as soon as the matter is finally settled in detail.

The work of arranging and classifying the books and periodicals of the library on a more satisfactory basis than that obtaining at present has been taken up. It has been decided that instead of the present system of arranging books in alphabetical order of their authors they should be classified and arranged according to their subject matter. A scheme of classification has accordingly been drawn up and the work of reclassification and rearrangement is proceeding so far as space permits. This has been made possible by the new room allotted for the joint use of the Connemara and University Libraries which has now been fitted with shelves and other requirements. It must, however, be pointed out that this process of reclassification involving as it does the classification (according to subject matter) for the first time of all the publications acquired since 31st March 1912 must necessarily be exceedingly slow until additional staff is sanctioned and cannot be put into effect in all sections till space is greatly increased by the removal of the University Library to its permanent quarters.

An inventory of the library furniture has been prepared and kept in the office. Government have approved the suggestion of having a stock taking of the contents of the library early in the current year.

The seventh supplement to the author catalogue is in the press and will be published shortly.

University Library.—The total number of readers during the year under report is 16,694 as against 15,083 in 1923–24 and 23,694 volumes were consulted as against 21,305 in the previous year.

The privilege of taking books on loan from the library was enjoyed by 324 University readers as against 261 in 1923–24 and 8,282 volumes were taken out as against 6,240 volumes in the previous year.

Museum theatre.—The theatre has been in great demand and was used on 38 occasions, eight of these being performances of the Madras Dramatic Society, three concerts of the Madras Musical Association, ten University lectures by Dr. A. S. Woodburne, D.Sc., and one lantern lecture by myself under the auspices of the Madras Teachers' Guild.

A revision of the rules governing the use of the theatre has been drafted with a view to making it more generally available for amateur societies, etc., on payment of rent. It is under the consideration of the Government.

Establishment.—There have been no changes in the permanent staff during the year. J. C. Fernandez, Second Taxidermist, returned to duty after two years' leave on loss of pay. The Archæological Chemist sanctioned by the Government temporarily for a period of six months worked here on the preservation of the bronzes from April to September 1924.

Premises.—The buildings were as usual attended to by the Public Works Department. But for want of funds the windows of the new building and library remain in a most unsightly condition. There has been no work of any magnitude carried out during the year. The lavatory for the use of the office staff which was in a bad condition has been improved. Special repairs to the godowns have also been carried out during the year.

The roads have been lined with white bricks so as to enable drivers of vehicles to keep to them better in the dark. As was anticipated, however, the bricks supplied are being continually knocked down and broken by the heavy motor traffic during performances at the theatre.

Valuable stock.—During the year an inventory of all furniture and fittings in the Museum and Library, including the office, stuffing room, godowns, etc., was prepared and checked, in addition to the inventory of other articles of valuable stock, such as apparatus, tools, etc., which alone had been kept before.

APPENDIX I.

Notable additions to the Archæological section.

A. Images.

(1) Copper images of Kaliya Krishna, Dancing Krishna and Vishnu with tiruvasi found in the village of Pandaravadai, Tanjore district.

(2) Marble image of Buddha found in the Tiruturaipundi town, Tanjore district.

(3) Copper images of Valli and Devayana found in the village of Sellamarathupatti, Madura district.

All the above were acquired under the provisions of the Treasure Trove Act.

B. Copper plate grants.

(1) A set of six copper plates purchased from Kosury Venkata Subbayya, Jujjavaram, Kistna district, on the recommendation of the Assistant Archæological Superintendent, Epigraphy, Southern Circle. It records the grant of the village of Drujjavaram surnamed Annavemapura to the Brahman Appayarya and his three brothers by the Reddi King Annavema on Saturday the Makarasankramana day in Saka 1293. (27th December 1371 A.D.).

(2) A set of three copper plates purchased from the Editor, *Andhra Patrika*, Madras. It registers the grant of the village of Penukaparu to Sree Yena Drona Sarman on the Jyeshtha Sankaranthi day by the Eastern Chalukyan King, Sri Jaya Simha Vallabha Maharaja, who ruled in the latter part of the 7th century A.D.

(3) A single copper plate found in the possession of a set of wandering Thottia Naicks who were concerned in a case of security for good behaviour and acquired by the Subdivisional Magistrate, Sankari, Salem district. It records that a defalcation of a lakh and fifty thousand rupees was made by one Ram Singh from the Treasury of the King at Kanchi. At his request five Visvakula Asaris paid the amount and got him excused. In order to get a living for Ram Singh they made an arrangement that every Visvakula family should pay him certain amount as tax on marriage and funeral occasions. The plate is dated Kaliyuga year 4024 (922 A.D.). Evidently this is a forgery.

APPENDIX II.

Donations—1924-25.

Cammiade, B.A., B.L., Bar.-at-Law, Mr. L. A.—
An opium pipe.

Central Museum, Lahore—
One rupee of Aurangzeb, Mint, Surat.

Controller of Printing, Stationery and Stamps, India—
A cardfolder containing Victorian stamps in blocks of four.

Corporation of Madras—
Crocodile eggs.

Director of Industries, Central Provinces—
Three Gadhiya coins of Rajputana.
Four coins of King Krishna Raja.
Six rupees of Aurangzeb, Surat Mint.
Six copper coins of Ahmadshah II, and two of Hoshangshah of Malwa.

Fisheries Department, Madras—
Holothurians.

Government X-Ray Institute, Madras—
Ten framed Radiographs of Corals, Shells and Lizards.

Hamid Hussain Sahib, Mr. M.—
Hawk moth (*Acherontia sp.*)

Matley, Dr.—
Galeodes indicus from Padalur Rest House, Perambalur taluk.

Muhammad Sahib, Mr. M.—
Two headed lizard.

Newcomb, Major Clive, I.M.S.—
Moon-moth.

Royal Asiatic Society, Bombay Branch—
Varahas of Sadasiva Raya and Harihara.
Half varahas of Harihara, Achutaraya, and Krishna Devaraya.
Two rupees of Muhammad Shah.

Subdivisional Magistrate, Sankari—
Copper-plate with Tamil inscriptions.

Subrahmanyam, Mr. V.—
Insects found in the balls of earth, belonging to a group of beetles commonly known as "dung rollers" or Scarabaeids.

United Provinces Government—
One rupee of Muhammad Shah, Shajahan II, Jahandarshah, three rupees of Farrukhsiyar.
One rupee of Humayun, Aurangzeb, Shajahan and twelve rupees of Shah Alam II.

APPENDIX III.

Treasure Trove finds of coins made in the Madras Presidency for the year 1924-25.

Serial number and district.	Taluk.	Village.	Details.	Metal.	Dynasty.	Monarch.	Description.	Number. Found.	Number. Acquired.
1. Kistna ..	Gudivada..	Medur ..	Found by K. Subbayya and eight others while ploughing the site of the abandoned fort in Medur, Vuyyur estate, on 19th October 1922.	G	..	..	Having punch marks of a boar in the centre, 2 Sris on either side, and the legend Rayagaja Kesari in Telugu Kannada script.	1	1
				G	Eruva ..	Pallava Rajula.	Having punch marks of a boar in the centre, 2 Sris on either side, and the legend Eruva Pallava Rajula.	1	1
				G	Kakatiya ..	Ambadeva Maharaja.	Having punch marks of a boar in the centre, 2 Sris on either side, and the legend Eruva Desapatta.	4	4
				G	..	..	South Indian fanams—		
							Variety No. 1	55	55
							,, ,, 2	10	10
							,, ,, 3	2	2
				C	..	..	One empty case	1	..
				G	..	..	Big gold pieces..	6	..
				G	..	..	Ear ornaments..	2	..
				G	..	..	Finger ring	1	..
				C	..	..	Copper pieces	2	..
2. Kistna ..	Kaikalur ..	Rachapatnam.	Found by eight persons while digging pati earth in survey No. 127 of Rachapatnam village.	G	Yadava ..	Sri Rama ..	Padmatanka with legend 'Sri Rama'.	10	10
					Do. ..	Mahadeva ..	Padmatanka with legend 'Mahadeva'.	1	1
					Do. ..	Sighana ..	Padmatanka with legend 'Sighana'.	2	2
					Do. ..	Singhana ..	Do. 'Singhana' ..	30	30
					..	..	Hair ornament	1	..
3. Vizagapatam.	Agency Tract.	Malkangiri.	Found in a vacant house site in the said village in December 1922.	..	Mughal ..	Muhamad Shah ..	Rupees	47	7 10 3
					Do ..	Aurangzeb ..			
					Do. ..	Shah Alam ..			
4. Kurnool..	Koilkuntla.	Bhumeripad	Found in a Reddy house in the said village by 2 persons four or five months before 18th March 1923.	G	East India Company.	..	Three Swami pagodas ..	217	217
5. Kistna ..	Gudivada..	Gudivada.	Found in the pati mound bearing survey No. 415 B of Gudivada	S	..	..	Punch-marked coins current in the 4th or 5th century before Christ.	58	58
6. Cuddapah.	Rajampet..	Manur ..		G	Mughal ..	Ahmad Shah.	Fanams—one minted at Hoxur and another at Kora.	2	2
						Muhammad Shah.	Fanams	3	3
						Shah Alam ..	Do.	2	2
7. Salem ..	Krishnagiri.	Goltapalli..	Found buried by certain Irulas who were digging holes for wild rats.	G	..	..	South Indian fanams obverse figure of a deity—Reverse a boat-like thing with 12 dots below.	5	5
8. Godavari.	Rajahmundry.	Kothapalli.	Found in the backyard of a house while it was made fit for tobacco cultivation.	G	East India Company.	..	Three swami pagodas.. ..	2	..
9. Kistna ..	Bezwada ..	Tadepalli..	....	G	..	..	South Indian fanams—		
							Variety No. 1	9	9
							,, ,, 2	7	7
							,, ,, 3	1	1
							Pendants	2	2
10. Chingleput.	Ponneri ..	Nandavanam.	While a shepherd boy was tapping the ground with his knife while grazing sheep in a forest situated within the limits of the village.	G	..	..	South Indian fanams—		
							Variety No. 1	209	209
							,, ,, 2	49	49
							,, ,, 3	29	29
11. Tanjore ..	Papanasam.	Tirupalaturai.	Found in a site belonging to Padmanabhaswami temple of the village.	S	East India Company.	Alamgir ..	Rupee struck at Arcot A.H. 1172.	20	20

APPENDIX IV.

Classified list of expenditure of the Government Museum and Connemara Public Library during the year 1924-25.

	Actuals. Rs.	Revised estimate. Rs.
Salaries—		
Superintendent and Principal Librarian	10,250	10,300
Permanent establishment, Government Museum—		
Personal Assistant, Archæological Assistant, Botanical Assistant, Zoological Assistant, Head Clerk and Cash-keeper, Second, Third, Fourth, Fifth Clerks, Senior and Second Taxidermists, Duffadar and 36 peons—48 persons.	25,421	25,500
Permanent establishment, Connemara Public Library—		
Sub-Librarian, four Attendants and three Peons—eight persons.		
Total, Establishment ...	35,671	35,800
Allowances—		
Travelling allowance	1,162	1,200
Contingencies—		
Cost of specimens purchased on tour and objects of interest and coin purchased at headquarters.	769	1,600
Cost of books and publications	3,000	3,000
Rents, rates and taxes	6,336	29,000*
Pay of menials	1,438	1,400
Other contingencies	19,135	19,900
Total, Contingencies ...	31,840	55,100
Grand total ...	67,511	90,900

* Includes provision for the payment of arrears of property tax.

Order—No. 1168, Law (Education), dated 7th July 1925.

Recorded.

(By order of the Government, Ministry of Education)

V. T. Krishnama Achariyar,
Secretary to Government.

To the Superintendent, Government Museum,
" Director of Public Instruction.
" Law (General) Department.
" Development Department.
" Accountant-General.
" Director-General of Archæology (with C.L.).
" Public Works Department.
" Registrar, University of Madras.
Editors' Table.

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on 03 December, 2015